

## **Response to Comments**



# RESPONSE TO COMMENT LETTERS

## Letter 1 - Environmental Protection Agency

**Comment 1:** BLM concurs that the Adaptive Environmental Management (AEM) planning process will be vital to ensuring that all reasonable efforts are undertaken to reduce environmental impacts from this project while still allowing the operators to develop the leases. As stated on page 5 of the Executive Summary, BLM will require implementation of an AEM planning process in the Record of Decision (ROD).

**Comment 2:** Table 2-15 has been revised to include receptor classes (see Errata).

**Comment 3:** Table 2-15 has been revised to include a summary of the cumulative visibility impacts in the Class I areas (see Errata).

**Comment 4:** The stipulation listed on Table 4-2 reflects language incorporated into some of the leases in the PAPA. The evolution of these lease stipulations is discussed in Section 4.2 of the DEIS beginning on page 4-7. Because the leases have been issued in the PAPA over a period of nearly 50 years, terms and conditions of the leases vary dramatically. Older leases contain few, if any, measures designed to protect the environment (see Section 4.2 of the DEIS). For sage grouse, the Standard Stipulation Alternative column on Table 2-8 summarizes the Wyoming BLM Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities which is included as Appendix A of the DEIS (see page A-20 for practices applied to sage grouse). This appendix describes BLM's current practices for protecting sage grouse in the Pinedale Field Office Area. The practices contained in Appendix A supersede less restrictive stipulations contained in the leases. As such, the mitigation measures contained in the Standard Stipulation Alternative column on Table 2-8 would be applied to protect sage grouse in the PAPA regardless of the terms and conditions included in the leases.

**Comment 5:** This potential mitigation measure was suggested by members of the public during scoping for the project. The option of suspending drilling during the evening hours was not evaluated as a mitigation opportunity because it is not technically feasible and could significantly increase health and safety risks. Drilling wells to depths of 12,000 or 13,000 feet is a continuous operation. If all drilling activities were required to cease during evening hours (i.e., the rig's engines were required to shut down completely), the entire drill string would have to be removed from the hole which would take several hours. Removing the entire drill string from the hole on a daily basis would actually increase daytime noise impacts because of frequent changes in operating levels of the rig's diesel engines and the clanging of drill string. Even more important is the increased risk of having the hole cave in on the drill pipe as it is removed or reinserted. Loss of the hole would significantly increase the risk of a blow out. A blow out would present significant health and safety risks for the crews as well as nearby residents. If the drill string is not removed from the hole at night, it would be necessary to continue to circulate drilling fluids through the hole which would still require operation of the rig's engines for pumps and lights. Noise and fumes would continue from the engines throughout the night. These problems would be compounded with directional drilling and the additional costs of suspending drilling could make many more directional holes uneconomic.

**Comment 6:** The text and Table 4-29 have been modified to round the incremental cancer risk to whole numbers (see Errata).

**Comment 7:** Total risk from all hazardous air pollutants has been added to Table 4-29 (see Errata).

**Comment 8:** An analysis of increased risk from carcinogenic emissions from compressors was not done specifically for the Pinedale Anticline Project. The analysis provided in the Jonah II EIS (BLM, 1997a) was used in the Pinedale DEIS. The Jonah EIS analysis assumed that the nearest residence would be at least 4 miles away from a compressor. Two of the proposed compressor station sites identified in Section 2.5.8 of the DEIS (the Jonah Gas site in Section 31, T. 31 N., R. 109 W. and the Ultra site in Section 16, T. 31 N., R. 108 W.) are less



than 2 miles from a residence. Therefore, additional NEPA analysis may be required prior to construction at either of these sites.

**Comment 9:** A windrose generated from the CALMET output data at a location in the center of the PAPA is provided on page 11 of the Airborne Toxins Effects Analysis in the Pinedale Anticline Oil and Gas Exploration and Development Project DEIS Technical Report.

**Comment 10:** Although results were not available at the time the DEIS was printed, monitoring was conducted in the New Fork River by WDEQ/WQD during 1998. The monitoring results show that the river is not water quality impaired and that the river fully supports its designated uses.

**Comment 11:** BLM concurs and anticipates that a water quality monitoring protocol will be developed in the early stages of the AEM planning process.

**Comment 12:** As this comment suggests, the State of Wyoming is currently in the process of reclassifying surface waters. However, the proposed changes to the water quality rules and regulations are not anticipated to take effect for several months. Therefore, the current water quality rules and regulations remain in effect. Class 3 waters were not defined in the DEIS because there are currently no Class 3 streams in the PAPA. However, because changes are expected in the future, a definition of Class 3 waters has been added to the DEIS on page 3-50 (see Errata).

Under the proposed rules changes, the tributary rule (defined as "any unlisted water shall have the same classification as the first listed water to which it is a tributary") would be eliminated. Class 1 waters would be those waters that have been specifically designated as such by the Environmental Quality Council. Class 2 designations would be based upon the fisheries information contained in the Wyoming Game and Fish Department's stream and lakes inventory database (as submitted to the Department of Environmental Quality in September, 1999). Class 4 designations would be based upon knowledge that a waterbody is an artificial, man-made conveyance, or has been determined not to support aquatic life uses through an approved Use Attainability Analysis. All other waters would be designated as Class 3.

For the PAPA, all waters in subbasins 1 through 5 and 46 (see Figure 3-14 of the DEIS), which are currently designated as Class 1 due to the tributary rule, would become Class 3 waters with the exception of the Green River which would remain Class 1. A Use Attainability Analysis would be required to reclassify waters from Class 3 to Class 4. Likewise, those waters within the PAPA which are currently classified as Class 2 due to the tributary rule would also become Class 3 with the exception of the classified water to which the others are tributary.

**Comment 13:** Impacts to wetlands and riparian areas are discussed in Section 4.17 of the DEIS (beginning on page 4-114).

**Comment 14:** The region encompassing the PAPA has been evaluated by a botanist with the Wyoming Natural Heritage Diversity Data Base. Rare plant communities in the region have been found only on specific upland soil types described in Section 3.19.2 of the DEIS (see page 3-66, Rare Plant Habitats). No wetland/spring/seep/groundwater interface rare plant communities have been identified by the heritage database or during wetland investigations for the DEIS.

**Comment 15:** BLM agrees that it may be necessary to evaluate biological sampling in many aspects of the AEM planning process. The need for biological sampling will be coordinated with the Wyoming Game and Fish Department as well as other cooperating agencies.

**Comment 16:** BLM will investigate the suitability of archiving results from water quality monitoring in STORET.

**Comment 17:** BLM concurs that the AEM planning process must be designed to consider synergistic effects. BLM anticipates that one of the primary goals of the planning process will be to design monitoring to allow for the



extrapolation of results to all aspects of environmental protection. The AEM planning process will be open to public participation. The ROD will specify time frames for preparation and implementation.

**Comment 18:** An open cut crossing consists of construction equipment (usually a backhoe) excavating a trench in the riverbed while the river flows over the construction area. Such a construction technique usually results in significant increases in turbidity during the short period which construction is ongoing. A bored stream crossing results in the pipe being bored or drilled under the riverbed and eliminates the need for equipment to operate in the flowing river. Bored crossings, if successfully implemented, can eliminate sedimentation and turbidity impacts.

**Comment 19:** Nearly all wetlands are on non-Federal lands. It is anticipated that the Corps of Engineers would participate in work groups established to address impacts to wetlands.

**Comment 20:** The "measures" refer to the numbered wetland mitigation opportunities following the paragraph.

**Comment 21:** All such models require information that is site-specific regarding disturbance. Because this information is currently unavailable (i.e., it is currently not possible to predict what level of disturbance will occur or where the disturbance will be located), BLM believes it is inappropriate to calculate sedimentation impacts even over a large range of potential development scenarios. In the future, when development potential becomes better understood, it may be possible to use such predictive models to redefine monitoring protocols. The use of these models will be evaluated in the AEM planning process.

## **Letter 2 - Department of Agriculture, Forest Service**

Thank you for your comment and participation as a cooperating agency.

## **Letter 3 - Department of the Interior, National Park Service**

**Comment 1:** The BLM does not have regulatory authority to control emissions or to specify emission limits or caps. That authority is delegated, pursuant to the Clean Air Act, solely to the Wyoming Department of Environmental Quality. However, BLM can carry your message forward into the ROD as a recommendation to WDEQ/AQD.

## **Letter 4 - Department of the Interior, Fish and Wildlife Service**

**Comment 1:** Quantitative data are provided throughout the DEIS and Wildlife Technical Report. The USFWS correctly recognized that the exact number of wells and locations cannot be determined. Consequently, analyses presented in those documents are based on assumptions which have been clearly described in various sections. For example, the area of potential habitat that may or may not be inhabited by black-footed ferrets, bald eagles, and mountain plovers that is within the PAPA and which could be disturbed by maximum well-pad developments under each of the Scenarios/Alternatives analyzed is in Tables 4-46, 4-48, 4-50, 4-52, 4-54, and 4-56. The estimates of surface disturbances in those tables are the best disclosure that can be made under the conditions of uncertainty about this project. The tables provide comparisons of disturbance in the specified habitats that 1) would be subject to BLM's Standard Stipulations applied to any resources, 2) would be subject to well pad limitations under the Resource Protection Alternative applied to Federal lands and minerals as well as applied to all lands and minerals, and 3) would not be subject to any stipulations or resource protection measures. In the last case (3), those areas could be developed at densities of up to 16 well pads per section with associated roads and pipelines contributing to additional surface disturbances over the short- and long-term. Those analyses of possible levels of surface disturbances in potential habitats used by black-footed ferrets, bald eagles and mountain plovers are provided in Tables 4-47, 4-49, 4-51, 4-53 and 4-55 for each of the Scenarios/Alternatives.

In other sections of the DEIS, habitat models were employed to evaluate suitability of habitats to support wintering pronghorn, mule deer and nesting sage grouse within defined simulation areas under potential and existing conditions. Model simulations were applied under the various Scenarios/Alternatives to, again, provide



some understanding of how the different well pad development approaches could affect wildlife habitats. Further, Chapter 5 of the DEIS and the Wildlife Technical Report provide quantitative measures of cumulative impacts to species' habitat functions for pronghorn and mule deer winter ranges and sage grouse leks in southwest Wyoming. If there are similar, more or better data or analyses available from other, similar well field developments that demonstrate impacts to listed and non-listed fish and wildlife species, BLM is not aware of them. Upon further review, BLM believes the analysis provided is adequate and sufficient to address truly significant wildlife issues.

**Comment 2:** As noted in the introductory Abstract to the DEIS and in Section 4.18.3 (page 4-119), the Biological Assessment (BA) for this project was incorporated in the DEIS. As stated under Section 7(c)(1), "Such assessment may be undertaken as part of a Federal agency's compliance with the requirements of section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332)." Specific items appropriate to a BA are addressed in the table inserted in the FEIS in Chapter 1 for easy location of each section in the DEIS.

**Comment 3:** One purpose of the AEM planning process is to formulate those very measures, identify what level of impact would initiate practices and what those practices would be. It is understood that the level of adequacy of those measures and practices would be debated and identified by the anticipated agency work group discussed in Appendix F, Section 3.0, page F-3 of the DEIS. The ROD will provide the commitment for the funding and identify who will conduct the monitoring of impacts and enforcement as well as specify a time frame within which the plan must be completed.

**Comment 4:** See Errata for this page. To date, previous surveys for black-footed ferret indicate the probability is zero for finding a ferret within the project area or anywhere else where their occurrence is unknown. While the DEIS analyzed potential of impact to potential black-footed ferret habitat (white-tailed prairie dog colonies), all available information, based on historical documentation of ferrets in the region (see Section 3.19.2, page 3-64 DEIS) there is only one record of actual physical evidence from 1930 near Farson, and numerous surveys conducted in the region, on the Jonah II Field and on the PAPA in 1999, there is no reason to believe or anticipate that the project would result in a take of that species. The BLM believes that measure number 12 described in Appendix A (page A-21) provides reasonable and prudent protection against the potential for a "take" as defined by the Act.

**Comment 5:** See Errata for this page. BLM's standard stipulations apply a zone with 1-mile radius around bald eagle nests during the period from February 1 through July 31 during and within which surface disturbing activity would be prohibited (see Table 4-2, page 4-9 of the DEIS). BLM would also prohibit permanent and high profile structures such as well locations, roads, buildings, storage tanks, overhead power lines, etc. and other structures requiring repeated human presence within 2,000 feet of active bald eagle nests (see Appendix A, page A-20). The study by Frazer *et al.*, was cited on page 4-124 DEIS to indicate the range of responses by individual bald eagles to approaching humans. Bald eagles flushed from nests in that study when humans approached an average distance of 1,500 feet, but some bald eagles tolerated humans approaching to within 187 feet while others flushed when humans were 3,250 feet away from nests. If these data were used to justify protection of bald eagles during the nesting season, BLM's policy of no surface occupancy within 1 mile of nests will certainly protect nesting eagles from disturbance and prohibition of permanent structures within 2,000 feet would minimize the chance that the majority of a nesting population would flush from occasional visits to structures 2,000 feet away.

Indeed, guidelines provided in the Bald Eagle Management Plan for the Greater Yellowstone Ecosystem define 3 zones surrounding nests: Zone I is a radius of 400 meters (1,312 feet, approximately 0.25 mile) around an occupied nest within which the guidelines recommend human activity should not exceed minimal levels during the period from February 1 to August 15 and in which habitat alterations should be restricted to those maintaining or enhancing bald eagle habitat. BLM's exclusion of permanent structures within 2,000 feet is consistent with this recommendation. Zone II is a radius of 800 meters (2,625 feet, approximately 0.5 mile) within which 75 percent of adult foraging and loafing activities occur during the nesting period. The guidelines recommend light human activity levels should not be exceeded during the nesting season, habitat alterations should be designed to insure that nesting habitat characteristics and foraging habitat are not degraded, and developments that may increase human activity levels should not be allowed. BLM's exclusion of activities within 1 mile of a nest during nesting



will insure that human activity levels will not increase within Zone II. If permanent structures such as well pads and roads are placed beyond 2,000 feet of a nest, human activities at those locations would invariably be light levels. But, since the one bald eagle nest within the PAPA is on private land, BLM cannot regulate disturbances or permanent structures that the landowner might generate.

The USFWS explained that their concern is repeated human presence that will cause the eagle to abandon their nest. BLM believes the 2,000 foot buffer is appropriate and consistent with the Bald Eagle Management Plan for the Greater Yellowstone Ecosystem. Until there is more conclusive research to indicate otherwise, BLM will continue to use this distance. Other protective measures BLM can specify in the ROD and evaluate as part of the AEM planning process could include off-site location of production facilities or the use of centralized production to move the repeated human disturbance away from a nest site.

**Comment 6:** With only 13 whooping cranes from the Grays Lake population alive in 1990 and only 4 alive in 1995, that rate of decrease (-69 percent in 5 years) would suggest that only 1 crane is alive now. Based on the most recent information, none are now alive.

**Comment 7.** Since the "Windy Gap Decision" by the USFWS concluded that any cumulative depletion in flow to the upper basin of the Colorado River System is considered to jeopardize the survival and recovery of these listed fish species. The USFWS Colorado River Endangered Fish Recovery Program requires that where depletion of water in excess of 100 acre-feet from the Colorado River system occurs (USFWS July 5, 1994), a depletion fee will be required to help support the Recovery Program for the Colorado River T&E fish. For the Pinedale Anticline Project, the worst-case average annual water requirement for wells would be 288 acre-feet (i.e., 90 wells X 3.2 acre-feet/well, access road, dust abatement, etc.). This means the operators will be required to pay (based upon a depletion rate of \$14.39 per acre-foot) a fee of \$4,145 to the conservation fund. The BLM ROD will specify that the operators shall make payment for the depletion charge by certified check or money order to the National Fish and Wildlife Foundation, 11230 Connecticut Avenue, N.W., Suite 900, Washington, D.C. 20036. See Errata to Appendix A, Page A-21, Number 13.

**Comment 8:** See Errata for this page. The DEIS does address development on private lands where there is potential habitat for listed species under each of the Scenarios/Alternatives analyzed in Tables 4-46, 4-48, 4-50, 4-52, 4-54, and 4-56 under lands (habitat) not included in Standard Stipulation Protection or Resource Protection Measures. The amount of short- and long-term surface disturbance possible for each of those is estimated in the accompanying Tables 4-47, 4-49, 4-51, 4-53, 4-55, and 4-57. In actuality, BLM cannot predict which private or state lands could be developed without direct involvement. In cases where operators would require BLM to issue special use permits for roads, pipelines, etc., BLM would have direct involvement and authority to apply Standard Stipulations and/or Resource Protection Measures to those permits along with connected actions on non-Federal lands and minerals. But in the absence of site-specific information, the analyses provided in Section 4.18.3.2 and Section 4.18.3.3 provide estimates of how much development could occur on non-Federal lands and minerals.

Development of the non-Federal mineral under non-Federal surface can occur without obtaining any permit or authorization from BLM. Access to these parcels can occur entirely from public (state, county) or private roads. However, there may be instances where access across Federal lands to private or state minerals/surface is requested. In these instances, the non-Federal lands will be considered an interrelated and interdependent part of the Federal action. In these instances, BLM will evaluate the potential for affecting listed or proposed species for listing and ensure that surface disturbance and activities on Federal lands, and on the private and state lands, through recommendations to the operator and landowners, will not adversely affect these species or their habitats. Where there is the potential to adversely affect a listed species, Section 7 review will be initiated by the BLM with the operator and landowner included. It is recognized that this process may take up to 135 days to complete.

**Comment 9:** See Errata for this page.

**Comment 10:** Evaluation of surface disturbance estimates for maximum well pad densities under each of the Scenarios/Alternatives on lands that would be subject to and lands without application of Standard Stipulations and/or Resource Protection Measures are provided in Tables 4-47, 4-49, 4-51, 4-53, 4-55, and 4-57. Any measure



that would limit well density in a specific area, whether imposed to protect cultural resources, recreation, viewsheds or wildlife, would also provide some protection to habitats potentially utilized by listed or proposed species. To be sure, sage grouse and mountain plovers require very different nesting habitats, but seasonal exclusion of surface disturbing activities within a 2-mile radius of leks provided to sage grouse during periods of and where courtship and nesting is occurring will also insure that mountain plovers nesting in suitable habitat within that spatial zone will also be beneficiaries of the particular protective measure. Further, species-specific surveys, monitoring requirements (Section 4.18.5) and mitigation measures (Section 4.18.4) would diminish any likelihood of impact to listed and proposed species.

The analysis provided was not intended to imply that the protective measures would negate the need to protect listed or proposed species. Rather, the analysis was simply pointing out the indirect effect that protective measures applied to one species can have on other species.

**Comment 11:** There is no suitable habitat for nesting peregrines in the PAPA. If new information shows that peregrine use does exist, then seasonal and distance buffers will be applied, when appropriate, to this species.

**Comment 12:** Although listing of Bonneville cutthroat trout may be warranted, BLM doesn't understand how that decision applies to Yellowstone and Snake River cutthroat trout. BLM is aware that Bonneville cutthroat, Yellowstone cutthroat and Snake River cutthroat trout have all been introduced to the Green River and that WGFD continues to stock Snake River cutthroat (see Section 3.20.6). BLM has not been informed how a finding that listing Bonneville cutthroat trout may be warranted would apply to populations introduced to areas outside of their historic range. Impacts to aquatic species have been addressed in Table 4-45 in general and for each Scenario/Alternative in Chapter 4.

**Comment 13:** Protective measures applicable to nesting mountain plovers would be enforced if nests are found prior to surface disturbing activities. Appropriate measures described in USFWS Guidelines (Appendix A, page A-21 DEIS) will be followed. Canada lynx are not expected on the PAPA. There is no suitable habitat present and, although there is an extant population west of the PAPA (see discussion on page 3-65, 3-66 DEIS), it is extremely unlikely that a dispersing individual would be found in the area. There is no practicable means of implementing protective measures for such a remote possibility.

**Comment 14:** See Errata to Appendix A, Page A-21, number 11. The purpose of the DEIS is to disclose potential impacts. Short- and long-term impacts to nesting mountain plovers appear to be one potential outcome of any Scenario/Alternative if no protective measures are applied. Based on current knowledge, those measures (Appendix A, page A-21 DEIS) are likely to eliminate impacts to the species. Hence the contention that mountain plovers are not expected to be affected by any of the project alternatives.

During surveys in the Jonah II project area, BLM biologists have noted a shift away from project activity by prairie dogs, whether due to gas developments, sylvatic plague, predator pressure or other causes. Once development has ceased and the field is in a producing mode, the level of activity will be substantially reduced. Continued monitoring should occur to see if a reversal in the population shift is detected.

It appears that mountain plover habitat on the PAPA is not limited to white-tailed prairie dog colonies and suitable habitat exists in desert shrub and mixed grassland vegetation. Though there have been provisions in the DEIS recommended to protect prairie dog colonies (see page 4-142 DEIS), there currently is no information suggesting that suitable nesting habitat is a limiting resource.

**Comment 15:** BLM has a standard stipulation (see Appendix A) to avoid raptor nest sites, restrict surface-disturbing activities within zones of 0.5-mile (most raptors) and 1-mile (ferruginous hawks and bald eagles) during the nesting period, and prohibits locations of permanent and high profile structures within 825 feet (most raptors), 1,000 feet (ferruginous hawk), and 2,000 feet (bald eagles). The exclusion zone for ferruginous hawks was extended from 825 feet to 1,000 feet to provide additional protection to active nests during years of low prey abundance (suggested by White and Thurow, 1985. *The Condor* 87:14-22). With nest monitoring and a functional AEM planning process, the effectiveness of those practices can be evaluated and augmented, if necessary, on



a nest by nest basis. Other protective measures BLM can specify in the ROD and as part of the AEM planning process could include off-site location of production facilities or the use of centralized production facilities to move the repeated human presence further away from a well and nest. See Errata to be added to DEIS at Comment 5, this letter.

**Comment 16:** BLM has just become aware of preliminary data collected on distribution of breeding passerine birds adjacent to roads on the Jonah II Field and on the Pinedale Mesa by researchers with the Wyoming Cooperative Wildlife Research Unit. That information, though preliminary, indicates some passerine species are displaced from habitats adjacent to roads. Final results of that study may be incorporated in the AEM planning process to assist future management decisions. Also see Table 4-45 in the DEIS.

**Comment 17:** See Errata for this page. The use of netting to cover reserve pits was specified on page 4-167. Since the DEIS is for disclosure rather than implementation, use of the word "should" is appropriate.

**Comment 18:** Each of the means for disposing of produced water listed in this comment are available methods that an operator may use. Closed containment systems are used for the most part. Trucking to WDEQ/WQD permitted evaporation ponds or disposal wells is another method.

**Comment 19:** Monitoring for wildlife mortalities due to any cause can be a program in the AEM planning process. Presumably, that plan would include procedures for reporting mortalities to the proper regulatory authority.

**Comment 20:** Habitat losses over the short- and long-term are the only measurable effects by which the various Scenarios/Alternatives can be compared. Documented responses of other species to various disturbances, including increased human presence and activity, that may be similar to those associated with natural gas developments were highlighted in Table 4-45. Too, effects of increased energy expense to wintering mule deer and pronghorns due to encounter rates with vehicles were addressed on pages 4-144 to 4-148 of the DEIS, a discussion that also addressed habitat function.

**Comment 21:** Since the DEIS is for disclosure purposes rather than implementation, use of the word "should" is appropriate.

**Comment 22:** Current information is insufficient to conclude that information presented on page 5-34 of the DEIS and on page 66 of the Wildlife Technical Report - see Table II.C-3 on page 57 and Table II.E-5 on page 66 - suggests adverse effects to sage grouse leks and attendance due to oil and gas. There may be direct cause-and-effect relationships but declines are most likely due to numerous sources of impact. New information from recent research on sage grouse conducted by the Wyoming Cooperative Wildlife Research Unit may provide additional insight or support for the apparent trends shown in Table II.E-5, Wildlife Technical Report. In any case, no information is available about what, if any, mitigation measures were applied to leks that are no longer active or currently inactive.

**Comment 23:** Camping on public lands is permitted as long as any party does not exceed 14-days. Squatting occurs if the party moves from one spot to another to get around the 14-day limit. However, this is not expected to be a problem with implementation of the project.

**Comment 24:** The operators within the PAPA have nationwide bonds. These are more than adequate for cover the cost of plugging and abandonment of wells. Operators are not released from bonding until plugging and abandonment meet acceptability criteria of the BLM, including revegetation of disturbed sites. To avoid problems that exist with lease transfers, BLM is currently considering a proposal to keep the bond with the original leaseholder.

Monitoring for effectiveness of implemented mitigation measures can be a program in the AEM planning process. Presumably, that plan would include procedures for rectifying ineffective measures.



**Comment 25:** These criteria and specific mitigation plans are expected to evolve out of the AEM planning process and agency work group.

**Comment 26:** Since the DEIS is for disclosure purposes rather than implementation, use of the word “should” is appropriate.

**Comment 27:** These criteria and specific mitigation plans are expected to evolve out of the AEM planning process and agency work group.

**Comment 28:** The 2-mile perimeter was agreed on by the USFWS and BLM following meetings (August 26, 1998) early in the project planning stage. Current levels of development in habitats potentially used by listed and proposed species were address in Chapter 5, page 5-26 of the DEIS.

#### **Letter 5 - State of Wyoming, Office of Federal Land Policy**

Thank you for your comment and participation as a cooperating agency.

#### **Letter 6 - Mayor, Town of Pinedale**

Thank you for your comment.

#### **Letter 7 - Gene R. George & Associates, Inc. (on behalf of Yates Petroleum Corporation)**

**Comment 1:** BLM does not understand the conclusion in this comment that the alternatives are “misleading to the public”. This comment suggests that only alternatives narrowly defined by existing BLM standard stipulations need to be evaluated in order to comply with the requirements of the National Environmental Policy Act (NEPA). This suggestion is not correct. Council on Environmental Quality (CEQ) regulations clearly require that all relevant, reasonable mitigation measures that could improve a project are to be identified in a NEPA document. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation. Please also see Letter 1 from the Environmental Protection Agency (EPA), page 2, first paragraph. EPA, in its role as final arbitrator of the adequacy of all NEPA documents, stated that the mitigation measures addressed in the DEIS did not require any substantive changes (see Letter 1, page 5, first full paragraph). In fact, EPA found the DEIS to be “very thorough, particularly with respect to the presentation of mitigation alternatives” (see Letter 1, page 1, paragraph 3). BLM believes that the alternatives addressed in the DEIS, including the Resource Protection (RP) Alternatives, provide both relevant and reasonable mitigation measures.

**Comment 2:** BLM disagrees that the title of RP Alternatives implies that the Standard Stipulations (SS) Alternative does not offer protection to resources. Such a statement is not made anywhere in the DEIS. Quite to the contrary, as noted by this comment, the DEIS on page 1-4 states clearly the SS Alternative does provide extensive environmental protection. However, as is concluded by the impact assessment contained in the DEIS, simply applying standard stipulations in the PAPA would result in a number of instances where undue and unnecessary impacts, deemed to be significant, could occur from development. The purpose of the RP Alternatives is to point out additional reasonable and relevant mitigation opportunities which could be used to reduce these impacts and still allow the operators to develop the leases. See also response to Comment 1, this letter and Letter 1 from the EPA, page 2, first paragraph. The public may or may not find the paragraph referenced in this comment significant to their analysis of the DEIS.

**Comment 3:** This comment suggests that the conclusion reached in the DEIS that “No technically feasible level of mitigation can be applied in these areas to minimize the severity of impacts to less than significant” is based solely on the results of modeling of impacts to mule deer and sage grouse. This suggestion is incorrect. As is pointed out on pages 2 through 4 of the DEIS Executive Summary and on Table 2-15 (see DEIS page 2-55), even with implementation of the RP Alternatives, significant adverse impacts may still occur to a host of resources



including: residential areas; sensitive viewsheds; the Lander Trail setting; cultural resources and Native American sensitive sites; nesting bald eagles; recreation; antelope, mule deer and moose winter ranges; and sage grouse. The conclusion was not reached merely or primarily on impacts to mule deer and sage grouse, as suggested by this comment.

This comment also states that modeling for mule deer and sage grouse has not been used previously in this area. This statement is also incorrect. Similar models were used to predict impacts for both the Enron Burley and Fontenelle EISs (also see response to Comment 4, this letter).

**Comment 4:** This comment suggests that the wildlife models used in the DEIS to predict impacts have not been peer reviewed or tested against actual monitored results. For the reasons discussed below, neither of these suggestions are correct. The wildlife habitat models used in the DEIS and described in the Wildlife Technical Report have been presented to wildlife authorities, actual and potential stake holders, and spatial data analysis experts on several occasions. Presentations unrelated to preparation of this DEIS include: the Cumulative Impacts Task Force (members including the BLM, Wyoming Game and Fish Department (WGFD), U.S. Fish and Wildlife Service (USFWS), Petroleum Association of Wyoming, and National Wildlife Federation) on August 21, 1995; Wildlife Society Annual Meeting, December 4, 1996; University of Wyoming School for Environment and Natural Resources - 1996, 1997, 1999 and 2000; and a University of Wyoming seminar on artificial intelligence (professors J. Van Baalen and W. Reiners), January 28, 1997. Following those discussions and review, the University of Wyoming Spatial Data and Visualization Center declared the modeling approach to "have produced one of the best examples of use of GIS and Bayesian methods for assessing cumulative impacts of gas and oil development in Wyoming" (see <http://www.sdvc.uwyo.edu/research.html>). In 1996, the WGFD reviewed the Fontenelle Natural Gas Infill Drilling Projects DEIS, which used basically the same modeling approach, and offered "the use of Bayesian Probability Models for evaluating cumulative impacts may have merit. The Draft EIS and technical report are the most conscientious, well thought out approaches to cumulative impacts analysis we have seen to date" (see Fontenelle Natural Gas Infill Drilling Projects FEIS, 1996, Comment Letter 15, Comment 15-3).

Early in the Pinedale Anticline Project EIS process, workshops were held to discuss the wildlife habitat models theory and applications. Wildlife biologists from BLM, WGFD, and the University of Wyoming were present at a workshop held at the BLM Rock Springs Field Office on September 9, 1998. That evening, the same materials were discussed and provided to Ultra Resources, Inc. (the operators' designated NEPA lead). All participants were provided printed materials describing Bayes' Theorem and its use in developing, applying, and revising the habitat models. The State of Wyoming, as a DEIS cooperating agency, stated that they were actively involved in development of new versions of the wildlife habitat models used in the DEIS (see Letter 5, first paragraph - State of Wyoming, Office of Federal Land Policy).

Further, the comment suggests that the results have not been tested against actual monitored results. Since the DEIS was printed, sage grouse nest site locations and associated environmental/habitat data have become available from studies conducted at 3 locations in Wyoming, including: 1) in the PAPA (Lyon, A. 2000. The potential effects of natural gas development on sage grouse populations near Pinedale, Wyoming. MS Thesis, University of Wyoming, Laramie); 2) in the Bates Hole area of Natrona County (Holloran, M.J. 1999. Sage grouse (*Centrocercus urophasianus*) seasonal habitat use near Casper, Wyoming. MS Thesis. University of Wyoming, Laramie); and 3) in the vicinity of Farson in Sublette, Sweetwater and Fremont counties (Heath, B.J., et al., 1997. Sage grouse productivity, survival, and seasonal habitat use near Farson, Wyoming. WGFD Completion Report, Cheyenne). The values of habitat parameters measured at sage grouse nest sites in these 3 studies support predictions made by the sage grouse nesting habitat model described in the DEIS and Wildlife Technical Report. There were 59 nest sites evaluated in the Farson study. All nests were within habitat rated by the model as suitable for sage grouse nesting with greater than 60 percent probability. In the Bates Hole study, 93 percent of the 74 sage grouse nests examined were within habitat the model evaluated as suitable with 75 percent probability and higher. In the PAPA, 46 sage grouse nest sites were evaluated. Of those, 37 nests were in areas that the model predicted to be suitable habitat with probabilities of 81 to 100 percent, 7 nests were in habitats predicted to be suitable with probabilities between 51 and 80 percent, and 2 nests were in areas the model predicted were suitable with less than 50 percent probability (more marginal than suitable habitat). Further



evaluation of that data indicates that sage grouse hens nesting in the PAPA selected highly suitable habitats (predicted by the model) more often than one would expect due to chance or random nest-site selection [chi-square test for homogeneity on frequencies of observed sage grouse nesting in suitable habitat (predicted by the model) compared to expected frequencies in that habitat based on availability (within the PAPA) showed that there would be less than 1 chance in 1,000 that sage grouse nests were distributed in the PAPA randomly ( $\chi^2 = 18.73$ , 2 df,  $p < 0.001$ )].

Also, data are currently being collected in the PAPA that can be used to validate the mule deer winter habitat model described in the DEIS. Pronghorn winter distribution data in the project area may eventually be used to validate the pronghorn winter habitat model. These research efforts have been funded by Ultra Resources, Inc. As part of the AEM planning process, new information including biological, distribution of project components, reclamation progress and mitigation efforts can be incorporated in the GIS databases developed for the DEIS to revise model predictions over the life of the project.

**Comment 5:** None of the models assume “permanent loss or decrease in reproduction” as this comment suggests. The models simply evaluate a landscape with various physical and biological characteristics and determine how likely areas within that landscape are as suitable habitat.

**Comment 6:** The DEIS does not state or otherwise imply that oil and gas is currently contributing to sedimentation in the New Fork River. However, a conclusion is appropriately reached in the DEIS that “extensive development will create challenges for protecting water quality in the New Fork and Green rivers.” When the New Fork River was nominated for the 303(d) list, the source of sedimentation was not identified. Results of monitoring completed by WDEQ/WQD after publication of the DEIS indicates that the New Fork River is not currently water quality impaired and currently fully supports all of its designated uses. However, BLM concurs with the need to monitor and respond to changes in water quality which is emphasized in Letter 1, Comments 10 and 11 (EPA) and will be addressed in the AEM planning process.

**Comment 7:** The statement on page 5 of the Executive Summary is correct. BLM has determined that an AEM planning process, roughly following the framework contained in Appendix F of the DEIS, is necessary and will be implemented for the project. Contrary to the conclusion reached in this comment, the decision to require monitoring through the AEM planning process is consistent with BLM’s obligations under NEPA. CEQ regulations at 40 CFR §1505.2, require BLM to adopt a monitoring and enforcement program “where applicable for any mitigation”. BLM has determined that the AEM planning process is applicable to future development in the PAPA and that the process will satisfy the monitoring and enforcement plan requirements in the CEQ regulations. In addition, CEQ regulations at 40 CFR §1505.3 address BLM’s obligations for implementing a decision. The regulations state “agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases. The lead agency shall:

- (a) Include appropriate conditions in grants, permits or other approvals.
- (b) Condition funding of actions on mitigation.
- (c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision.
- (d) Upon request, make available to the public the results of relevant monitoring.”

BLM has determined that adopting the AEM planning process is an effective mechanism to assure that decisions made in the ROD are carried out and that the results of monitoring are effectively communicated to cooperating agencies as well as the public. See also response to Letter 1, Comment 1 (EPA).

**Comment 8:** The reason the RP Alternative on All Lands and Minerals was considered in the DEIS is explained in detail on page 2-43 of the DEIS. The DEIS states “this alternative is being analyzed in detail in compliance with the regulations for implementing NEPA”. CEQ questions and answers about the NEPA regulations (1981) state at 2(b), “An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable.” Because the PAPA contains private and state land, the analysis must consider the impacts to these lands. Some of the most sensitive resources in the PAPA (moose crucial winter range, wetlands, 100-year



flood plain, etc.) are located almost entirely on non-Federal lands and minerals. CEQ regulations require that all relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and would thus not be committed as part of the RODs of these agencies. This is intended to alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation (see CEQ questions and answers #19b).

The BLM does not believe that inclusion of this alternative is misleading to the public as suggested by this comment. Page 2-43 of the DEIS states “this alternative would apply RP Alternative mitigation measures developed for Federal lands and minerals to all lands in the PAPA. Obviously, operator compliance with any of these recommendations would be strictly voluntary (emphasis added) on non-Federal lands and minerals.” In addition, through adoption of ordinary land use regulations, Sublette County and the Town of Pinedale could implement some provisions of the RP Alternatives. Similarly, the Wyoming Oil and Gas Conservation Commission has discretionary authority to regulate drilling in proximity to residences, flood plains and areas where groundwater contamination is possible. By identifying the impacts which could be mitigated by applying the RP Alternative on private lands in the DEIS, BLM has “alerted” these jurisdictions of reasonable mitigation measures which could improve the project. Contrary to the claim made by this comment, this is precisely what NEPA requires BLM to do. Finally, private landowners, when negotiating lease agreements with the operators, may choose to adopt some of the RP Alternative provisions to protect natural resources on their lands. EPA, in accordance with their review capacity under NEPA, concurred with BLM’s inclusion of this alternative in the DEIS (see Letter 1, page 2, first paragraph).

**Comment 9:** The BLM has not asked the State of Wyoming to adopt Federal stipulations on state or private lands. However, BLM may recommend in the ROD that certain measures be adopted on state and private lands.

**Comment 10:** Limiting the number of rigs would be one obvious way to control the “pace of development”. Because pace of development is directly related to impact intensity for many resources, it is important to disclose in the NEPA document how a slower pace of development could result in reduced impacts. The need for a slower pace of development was also a comment frequently received from the public during scoping and in public comment on the DEIS (see Table 4-1 on page 4-6 of the DEIS). Public comment regarding the pace and level of development included the themes of: 1) development is occurring too quickly; 2) development should proceed with as much caution as possible; 3) consider a phased approach to development; and 4) evaluate incremental development on a smaller area.

BLM has authority to regulate the “manner and pace” of development of the PAPA (see page 2-43 of the DEIS). In fact, even the lease terms state that BLM reserves the right to specify rates of development and production in the public interest (standard Lease Term 4). BLM believes the mitigation measures incorporated into the RP Alternatives, including a limit on the number of rigs operating at any time in the PAPA, are reasonable in that they prevent or reduce what is identified in the DEIS as significant threats to the environment.

BLM must balance the need for maximum economic recovery with the need to protect natural resources and environmental quality on the leased lands (43 CFR 3162.1(a)). Also, FLPMA regarding the management of use, occupancy and development of the public lands (Section 302(b)), requires the “Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.” BLM must preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA. The DEIS clearly and accurately demonstrates that unnecessary and undue impacts will occur to resources in the PAPA. The RP Alternatives would be one way to reduce undue and unnecessary impacts.

Protecting these resources may necessitate controlling the pace at which development occurs. Because BLM has authority to limit the number of rigs operating in the PAPA to control impacts, such a mitigation measure was incorporated into the RP Alternative as a reasonable, relevant mitigation opportunity consistent with CEQ requirements (see Letter 1, page 2, first paragraph – EPA). One obvious means of solving the potential problems



pointed out in this comment associated with drainage and protection of correlative rights would be to establish a unit.

**Comment 11:** After discussing this comment further with the author, it was concluded that analysis of another alternative was not necessary. The point made by this comment is that a number of seasonal restrictions exist in the PAPA which affect the operator's ability to drill wells year-round. The DEIS reaches the same conclusion (see page 4-50 and 4-57 of the DEIS). This operator believes it may not be possible to drill as many as 60 to 90 wells per year in the PAPA and that limiting the number of rigs to no more than 5 would make it impossible to drill even 40 to 60 wells in the project area annually. However, BLM believes that for purposes of analysis the range of wells which could be drilled in the PAPA annually, as presented in the DEIS, is adequate. The precise number of wells which could be drilled will depend on a number of factors including which alternative is selected, where the reserves are discovered (i.e., within or outside crucial winter ranges, sage grouse nesting habitat, etc.) and what portion of the private and state lands will eventually be developed where no seasonal restrictions are applied and drilling can occur year-round. These factors, coupled with future natural gas prices, suggest a wide range of possibilities regarding future development intensity which is reflected in the range of wells drilled annually analyzed in the DEIS.

**Comment 12:** BLM disagrees that limiting the number of well pads would "violate" the VRM II standards as suggested by this comment - in fact, BLM believes the opposite is true. As is discussed on Table 4-2 (see page 4-10 of the DEIS), standard lease stipulations in VRM II areas state "surface occupancy or use will be restricted or prohibited (emphasis added) unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts." The lease stipulation suggests that approval of well pads in VRM II areas would typically be an exception rather than the rule.

The objectives of VRM II areas are listed on page 3-27 of the DEIS. One objective is to retain the existing character of the landscape. It is reasonable to conclude that a well pad on every 40, 80 or even 160 acres within the VRM II area could dramatically and adversely affect the character of the landscape, which would contradict the VRM II standard. It is inconceivable how, as this comment claims, "landscaping, etc." could allow 16 well pads per section to be placed in a VRM II area while still maintaining the character of the landscape.

**Comment 13:** It is assumed that the comment refers to other visually sensitive areas identified in the DEIS but outside the current VRM II area. The Sensitive Viewshed SRMZ includes areas designated as VRM II and VRM III by the Pinedale RMP (see Figures 3-9 and 3-10). During scoping for the project, BLM received a number of comments from the public about the sensitivity of portions of the PAPA to visual degradation. These comments are summarized in Section 4.8.1 (see page 4-52 of the DEIS). During public workshops it was determined that the areas most sensitive to visual perturbation are generally those that are visible from Pinedale, Bargerville and along U.S. Highway 191. To determine the locations of these visually sensitive areas, a series of GIS simulations were conducted (see Appendix G of the DEIS). Methodology for the simulations is described beginning with the last paragraph of page 3-27 of the DEIS. The results of the simulations suggested that the area shown on Figure 3-10 (page 3-30 of the DEIS) would be visible from a number of viewpoints in Pinedale and along U.S. Highway 191. For purposes of the DEIS, BLM identified the area shown on Figure 3-10 as the Sensitive Viewshed SRMZ.

The comment suggests that BLM cannot "enforce" mitigation of visual impacts in that portion of the Sensitive Viewshed SRMZ outside the current VRM II classification. BLM disagrees. One of the purposes of the DEIS is to identify reasonable and relevant mitigation measures that could improve the project (see Letter 1, page 2, paragraph 1 – EPA). It was reasonably concluded in the DEIS (and it is intuitive) that the fewer the number of visible well pads and their associated facilities in the Sensitive Viewshed SRMZ, the less the impact on the visual integrity of the SRMZ.

Even the SS Alternative recognizes that BLM can mitigate visual impacts in VRM III and IV areas. Appendix A of the DEIS contains the Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities which were used, in part, to define the SS Alternative. Visual resource protection and mitigation is discussed on page A-22 of Appendix A. These standard conditions clearly point out that BLM can, and indeed currently does, enforce mitigation of visual resource impacts outside of VRM II areas. As was stated



in the DEIS, the VRM classifications within the Pinedale Field Office Area may need to be updated and the RMP modified, if necessary. BLM will address the VRM planning review in the ROD.

**Comment 14:** Yates (and others) misunderstand the purpose and nature of the National Park Service Oregon Trails Management and Use Plan (NPS, 1999). The NPS informs BLM that the Lander Trail is included as a route of the California National Historic Trail, not the Oregon or Mormon National Historic Trails as the DEIS has written. Congress authorized this trail in 1992. The National Park Service's (NPS) Comprehensive Management and Use Plan and Environmental Impact Statement (CMP) was distributed in August of 1999 and finalized with a Record of Decision in November of 1999.

Land managers, i.e. Pinedale BLM, are mandated by law to manage resources, including cultural resources. The trail is one such cultural resource. The Pinedale RMP, Pinedale Anticline EIS, etc. are used to manage the trail, while the trails CMP is an umbrella management plan that seeks to overarch the entire trail. As such it should be employed as a conceptual plan, with local management plans fitted and coordinated with it. NPS recognizes that the CMP document "...serves as a coordinating document that provides broad-based policies, guidelines, and standards for administering the four trails to ensure the protection of trail resources, their interpretation and their continued use" (NPS, 1998, v). It does not provide for detailed segment-specific management, as NPS recognizes up-front that NPS doesn't manage the land upon which are found the Trail resources under consideration (op.cit. p.3). NPS has assumed a coordination role in Trail interpretation and in establishing partnerships with Trails-related publics (e.g. the Oregon-California Trails Association (OCTA), various State Historic Preservation Offices (SHPOs), private landowners who possess Oregon Trail resources).

What is apparent from the comment is a disregard for the action of the Congress in authorizing the California National Historic Trail/Land Road (1992) as one of the most significant of historic trails in the United States. Just because the portion of the Lander Road in the PAPA is not identified as a "high potential segment" does not negate the recognition accorded it by Congress and signed into law. Further, it does not follow that potential adverse impacts to the trail corridor are justified.

To advance the argument that the portion of the Lander Road in the project area is not a "high potential segment" thus insignificant is incorrect. The fact remains that Congress authorized it in law, as a national historic trail, not pieces of it, but the entire route. For planning purposes as required in the National Trails System Act (NTSA) (1968), the NPS had to identify through a public process "high potential sites" and "high potential segments." This can be changed through additions or deletions per the NTSA. Many land managers, trail associations, and individual citizens made submissions for these categories. Unfortunately, the NPS planning team for the trails CMP did not receive a recommendation from the BLM that the PAPA crossed by the Lander Road merits identification as a "high potential segment." However, the flexibility of the NTSA makes it possible to add "high potential segments" and "high potential sites" to the CMP.

In places along the route of the California National Historic Trail, ranch roads are sometimes right on top of the trail. Land managers allow use of the road, and though it may temper the pristine nature of the trail, it still conveys a sense of the trail period to modern day travelers. Monitoring is a key to protection. One should not overlook the setting of the road as contributing elements to the trail and the experience of following the trail. Such is abundantly evident in the project area along the Lander Road.

The geographic setting along the portion of the Lander Road in the PAPA is rather flat. The visual impact is an important aspect in the experience of those following the trail. Visitors will employ vehicles to access the trail corridor. To imply the only way to experience it is by walking, horseback or covered wagon is unrealistic. It is now the 21<sup>st</sup> century! It is important to note that similar protective viewsheds have been identified along other segments of the trail. The BLM's Green River Resource Area RMP (1998) uses a 6 miles wide area at South Pass, and a 2 miles wide area on the Lander Road. It seeks to protect viewsheds of the trails corridor by such means as employing landforms as screening. The trails CMP posits an accordion approach to protecting viewsheds (see p. 68), subject to existing management plans by, in this case, the BLM.



The comment of a "¼ mile avoidance as safeguard to the integrity of the trail" is a statement of interpretation. The trails CMP does not make such a statement. Perhaps the comment is based on the 1981 Oregon National Historic Trail management plan, which has been superseded by the 1999 CMP.

The Lander Trail (aka Lander Road, Lander's Cutoff) IS depicted on the NPS EIS map(s). The Lander Road is depicted on the maps, pp. x, 7, and 28, among others.

**Comment 15:** The limit on the number of well pads is not intended to correspond to actual disturbance. Rather, it is intended to address impacts to the trail's setting, primarily from visual intrusions on the landscape. Such impacts are dependent on the types of adjacent land uses visible from the trail, not necessarily acres of disturbance.

**Comment 16:** This comment states that the RP Alternative proposed limit on visible well pads adjacent to the Lander Trail is "based on assumed human disturbance." This is not correct. The potential impacts to the trail used to design the RP Alternatives have been clearly identified in the DEIS as related to the trail's setting (see page 4-64 of the DEIS). The DEIS notes that the viewshed from portions of the trail in the PAPA is extensive and that the viewshed is not currently dominated by human perturbations. Extensive development in this viewshed would change the setting of the trail and modifications to the natural landscape would be apparent. The DEIS concludes that extensive, visible development of areas adjacent to the trail would significantly alter the trail's setting and diminish the ability of visitors to experience the Lander Trail in the same context and setting as pioneers.

The Oregon Trail is a National Register eligible historic property because it is "associated with events that have made a significant contribution to the broad patterns of our history (36 CFR 60.4(a)) and because the Lander Trail is "associated with the lives of persons significant in our past" (36 CFR 60.4(b)). The purpose of a protective corridor along the National Historic Trail Corridor is to preserve the integrity of setting, integrity of place, historical association and cultural landscape of the Oregon Trail corridor. This is because the Oregon Trail is eligible for National Register inclusion under different criteria than an archaeological resource. The Oregon Trail is a National Register eligible historic property because it is "associated with events that have made a significant contribution to the broad patterns of our history (36 CFR 60.4(a) [Westward Expansion was pivotal for the United State's growth in the mid nineteenth century]; because the Lander Trail is "associated with the lives of persons significant in our past" (36 CFR 60.4(b) [Frederick W. Lander has a Wyoming county, a Wyoming city, a Wyoming mountain and a Wyoming creek named after him]. Other people and things associated with FW Lander who are recognized by place names include Mount Thompson, Thompson Pass and Commissary Ridge (FW Lander's commissary at Snyder Basin) indicate that clearly people associated with the Lander Trail are significant at the state level.

Specifically, 36 CFR 800.9 indicates that an undertaking has an Adverse Effect upon a National Register eligible historic property if the undertaking diminishes the integrity of the property's location, setting, design, materials, workmanship, feeling or association. Such adverse effects include (but are not limited to) physical destruction, damage or alteration of all or part of a property, isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register, or if there is an introduction of visual, audible or atmospheric elements that are out of character with the property or alter its setting (36 CFR 800.9(b)(1-3). The goal is to preserve the setting in much like that of the mid-nineteenth century.

Construction of well locations, tank batteries, flare pits, back dirt piles, pipeline rights-of-way, gravel pits, and other developments associated with oil and gas development (such as smoke and noise from drilling, the establishment of permanent energy related monitoring and maintenance vehicular activity) associated with a modern gas field in an area lacking such intrusions previously all detract from the integrity of setting, integrity of place and are at variance with the historical association of the nineteenth century emigrant experience. The Area of Potential Effect of an Oregon Trail corridor is different, much larger than the Area of Potential Effect of a National Register eligible property that is significant only for its information content, such as an archaeological site. Thus, the 0.25 mile buffer was assessed as insufficient to protect the integrity of setting, the integrity of place and historical association of the Lander Trail in the project area. Unfortunately for the developer, the project area is



a flat, regular surface that can easily be compromised by intrusions several miles distant from the Trail itself. Refer to Figure 3-11 on page 3-35 for a Visibility Analysis of the Lander Trail.

**Comment 17:** It is unclear how the RP Alternatives would limit resource recovery to such an extent that a “federal takings” would occur, as this comment claims. Please refer to the Lander Trail SRMZ description for the RP Alternatives on Table 2-8 (page 2-36 of the DEIS). The mitigation requirement addressed by this comment states “every effort would be made on Federal lands and minerals to locate production equipment between 0.25 and 1.5 miles of the Lander Trail and north of State Highway 351 in areas not visible. No more than 2 visible well pads per section would be allowed between 0.25 and 1.5 miles of the trail, where possible (emphasis added). However, more than 2 visible well pads may be allowed if centralized production facilities are constructed that are not visible and eliminate the need for tanks at visible locations.” The intent of this mitigation requirement was to allow development to proceed, thereby not limiting recovery of reserves, but to significantly reduce the impact from visible production equipment on the setting of the trail. The mitigation requirement does not restrict the number of wells which could be drilled in the area or require every well to be directionally drilled, as suggested by this comment. Rather, the mitigation requirement contemplates the use of well pads hidden by topography to the extent possible and/or centralized production facilities (which would eliminate the need for tanks at the visible well pads) to reduce the visual impact to the trail’s setting. In other words, the mitigation requirement would allow up to 16 well pads to be constructed in a section within 0.25 and 1.5 miles of the trail – however, centralized production facilities which are not visible from the trail would have to be employed to eliminate the need for tanks at visible well pad locations. BLM believes that such mitigation is both reasonable and relevant and will in no way preclude development of the leases, as suggested by this comment.

**Comment 18:** The statement that Figure 3-11 restricts the number of locations in Section 26, T. 31 N., R. 108 W. to no more than 2 is not correct. Please refer to page 2-36 (Table 2-8) of the DEIS. The RP Alternative on Federal Lands and Minerals states “more than 2 visible well pads may be allowed if centralized production facilities are constructed that are not visible and eliminate the need for tanks at visible locations.” Thus, centralized production could be used to allow additional vertical wells to be drilled in the trail’s viewshed (but outside the current 0.25-mile protective buffer), which would alleviate the problems associated with the long directional wells described in this comment. It is also important to point out that over half of Section 26, T. 31 N., R. 108 W. is within 0.25-miles of the Lander Trail and that Yates is currently prohibited from drilling wells at visible locations within this half of the section. This prohibition will remain regardless of which alternative is chosen for future development in the PAPA.

**Comment 19:** Part of the BLM’s mandate to manage the Oregon Trail is for recreational, educational and interpretive opportunities. This is clear in the National Park Service (1998) and BLM Wyoming’s (1985) management plans. Thus, BLM has not closed the trail to vehicular use. A single vehicle, or small numbers of vehicles present a short duration intrusion into the trail setting, usually limited to only an hour or two. No permanent scars result. BLM also monitors the condition of the trail and has a multi-year photographic record of the Lander Trail in the project area. Finally, when BLM co-sponsors one to three day excursions on the Lander Trail (as it has several times in the past, specifically with the Pinedale Middle School), BLM cultural resource specialists are on-site to monitor trail conditions, to ensure no artifact collecting occurs, to aid educators in educational opportunities via lectures and identifying historical points of interest, and the like. The children and adults walk the trail; adult supervisors ride horses and horse-drawn wagons are used to accompany the Middle School treks (as they are called). Walking a 10 mile segment of the trail has proven to be an excellent tool to inspire children and adults both concerning the hardships of the 1,400-mile emigration. Thus, contrary to the comment, BLM has set an excellent example of inspiring the “pioneer experience” to school children and adults alike, using but not abusing an intact trail resource.

**Comment 20:** BLM disagrees that it cannot “enforce” the RP Alternatives mitigation requirements for the Lander Trail. See also response to Comment 17, this letter. BLM considers protection of the trail’s setting beyond the current 0.25 mile limit as a reasonable and relevant measure to improve the project and can enforce the provisions of the RP Alternative on Federal Lands and Minerals, if determined necessary in the ROD. BLM believes the mitigation measures proposed by the RP Alternatives are reasonably related to a legitimate public purpose in that they prevent or reduce what is identified in the DEIS as a significant threat to the setting of the trail.



The BLM has a strong public interest in preventing undue and unnecessary damage to natural resources in the PAPA. Protecting these resources may necessitate restricting surface damage in portions of the PAPA.

BLM is required by regulations at 36 CFR 800, 36 CFR 60, 36 CFR 63, Executive Order 11593 (signed by Richard Nixon in 1971), the National Historic Preservation Act and other authorities to identify significant historic properties, and assess proposed effects to these properties when they are recognized as of National Register significance. The United States Congress, when it enrolled the Oregon Trail (and its subpart, the Lander Trail) as a component of the nation's National Historic Trails System, further mandated BLM to provide for leadership in management of a resource of national significance. For the reasons stated in this response (and responses to Comments 16 and 17, this letter), BLM disagrees with the comment that BLM's mandate is "unenforceable".

**Comment 21:** BLM disagrees with the conclusion reached by this comment. Depending on local activity levels, noise from these sources may indeed be constant. For instance, a dozer or scraper working for many hours constructing a well pad can produce a constant noise which could interfere with females attraction to male's display.

**Comment 22:** This comment inappropriately compares potential noise attenuation to the 49 dBA level (daytime background level + 10 dBA). Background ambient noise levels at night and early morning (when sage grouse courtship and breeding occur) are expected to be somewhere near 32 dBA (see page 3-40 of the DEIS), not 39 dBA as assumed by this comment. The comparison should, therefore, be made using noise attenuation to 42 dBA. As is noted on page 4-147 of the DEIS, studies are proposed by BLM to determine if the 0.25-mile buffers around leks are sufficient to mitigate impacts due to noise and other potential impact sources. Those studies have been funded and will begin during the spring of 2000. See also response to Comment 21, this letter.

**Comment 23:** The 10 dBA above background limit is not arbitrary but rather reflects the level of impact which could occur from current, routine public use of the area (cars, trucks, ORVs, etc.) and which likely already occur during the nesting season in the PAPA. The area likely does not currently experience constant impacts from noise in excess of 10 dBA.

**Comment 24:** BLM cannot determine what literature is being referenced to support the conclusion that additional monitoring or restrictions are not necessary.

**Comment 25:** The comment is quoting the statement out of context. The statement referenced by this comment on page 5-19 of the DEIS was made in the context of air quality and noise, not as part of the cumulative impact analysis on sage grouse.

**Comment 26:** This comment states that the proposed RP Alternative limit on well pad locations in sage grouse nesting habitat is arbitrary and unnecessary. BLM disagrees. The limit on the number of well pads listed on page 2-39 of the DEIS is based on the results of the wildlife models described in the Wildlife Technical Report. Results from independent studies across Wyoming have shown the sage grouse nesting habitat model to be highly predictive (see response to Comment 4, this letter). The model demonstrates that impacts to nesting habitat are expected to be dependent on the density of wells which could be mitigated by limiting the number of well pads in high quality nesting habitat. The mitigation measure is reasonable and relevant and is consistent with CEQ regulations to identify mitigation which could improve the project (see Letter 1, page 2, paragraph 1 – EPA). BLM believes the mitigation measures included in the RP Alternatives are reasonably related to a legitimate public purpose in that they prevent or reduce what is identified in the DEIS as significant threat to nesting sage grouse habitat in the PAPA.

Potential impacts to sage grouse are of particular concern because of recent studies that suggest that sage grouse populations may be declining at a rate that may warrant their listing as threatened pursuant to the Endangered Species Act. According to Connelly et al. (2000. Guidelines for management of sage grouse populations and habitats. Idaho Department of Fish and Game, Pocatello), breeding populations of this species have declined by at least 17 to 47 percent throughout much of its range. BLM has an obligation to manage Federal lands in such a manner as to prevent species from being listed as threatened or endangered. Protecting



and improving nesting habitat may be one of several measures that could turn around the recent declines in nesting populations.

**Comment 27:** Table 2-8 (see page 2-39 of the DEIS) describes mitigation alternative requirements, not impacts as suggested by this comment. The comment states that limiting well pads to 4 per section is “excessive, arbitrary and not related to soils or to other mitigation measures”. However, no information is provided in the comment to support the statements. The restriction on well pads listed on this table for the RP Alternatives is the result of both paleontological resource concerns as well as highly erosive soils. The reason the RP Alternatives recommend limiting well pads in this area is to protect paleontological resources and reduce impacts on/from sensitive soils. Much of the area contains soils which are highly erosive from both wind and water. When disturbed, these soils will be extremely difficult to reclaim. This area is in close proximity to the Green and New Fork rivers and could contribute sediment to these waters. By limiting the number of well pads and miles of roads and pipeline, disturbance would be reduced in these sensitive soils. The mitigation measure is both reasonable and relevant and is consistent with CEQ regulations to identify mitigation which could improve the project (see Letter 1, page 2, paragraph 1 – EPA). The measures are particularly relevant considering the potential for water quality degradation in Class I waters.

**Comment 28:** The Programmatic Agreement (PA) presented in the DEIS is a draft. Subsequent to the close of the public comment period, the BLM, SHPO, the operators and various consultants met on March 3, 2000 to discuss the PA and much of the detail of what the PA will contain. Many of the concerns raised by the operators in comments to the DEIS were addressed at that meeting. The BLM and the operators agreed to revise the draft programmatic agreement. The PA is in revision stages now, and Yates (as well as all other operators) are invited to and have taken an active role in its refinement.

**Comment 29:** Pages 2-41 and 2-42 of the DEIS have been revised to address this comment (see Errata).

**Comment 30:** “Annually” should not have been included in describing the number of operating rigs and has been struck from this discussion (see Errata).

**Comment 31:** The comment misquotes the DEIS. The reference contained in Table 4-1 of the DEIS is to Section 2.3.3 not 2.7.3 as stated in the comment. Section 2.3.3 explains why limiting well pads to 1 or 2/section would be technically infeasible, which is consistent with the statement made on Table 4-1. The logic is not “convoluted” if the DEIS statement regarding incremental development on a small area is read in context with the discussion found in DEIS Section 2.3.3.

**Comment 32:** It is important to point out that all the mitigation measures quoted in this comment are currently in place in the PAPA and will be imposed upon future development regardless of which alternative is ultimately chosen in the Record of Decision. It is equally important to point out that these seasonal restrictions, with the possible exception of sage grouse nesting habitat, are spatially isolated to just a portion of the PAPA and do not cumulatively cover the entire PAPA, as this comment suggests. As can be seen on Figure 3-1 (page 3-3 of the DEIS), portions of the PAPA contain state and private lands and minerals where no seasonal restrictions are placed on drilling activity (i.e., drilling can occur year-round regardless of the resources found on that land). In fact, Anschutz drilled wells in big game winter range through the crucial period in the winter of 1999 on private lands in the northern portion of the PAPA. Only the northern half of the project area is significantly affected by big game crucial ranges (see Figures 3-19 through 3-21). Drilling schedules in the southern portion of the PAPA are generally not limited because of big game winter ranges. The statement in the comment that raptor nests are seasonally protected by a 1 mile buffer is not entirely correct. The 1 mile buffer applies only to ferruginous hawk and bald eagle nests and only to Federal lands and minerals. Only 1 bald eagle nest occurs in the PAPA and ferruginous hawk nests are restricted to the Blue Rim Area. All other raptor nests are protected by a buffer of 0.5 miles and are mostly restricted to the vicinity of the New Fork and Green rivers. Spatially, raptor nest buffers encompass only a small portion of the PAPA.

Perhaps the largest seasonally restricted area is related to sage grouse nesting habitat (see Figure 3-22 on page 3-79 of the DEIS) which encompasses most of the PAPA. But even with this 4 month restriction (March 1



through June 30), a large portion of the PAPA (especially the southern part) is open to drilling for at least 8 months of the year. BLM agrees that if development is concentrated in the northern part of the PAPA, cumulative restrictions currently imposed will severely limit drilling opportunities on Federal lands and minerals. However, these restrictions will be imposed regardless of which alternative is chosen in the ROD. If development concentrates in the southern portion of the PAPA, cumulative seasonal restrictions will be less burdensome to the operators.

The conclusion reached by this comment that “If only 5 rigs..are allowed..only 8 to 10 wells per year could be drilled” is not supported by careful review of the spatial distribution of seasonal restrictions and land ownership patterns in the PAPA. In reality, 8 to 10 wells could be drilled annually in the PAPA by a single rig operating on just private and state lands and minerals.

**Comment 33:** BLM disagrees with the contention that there is currently sufficient information available to conclude that implementation of the RP Alternatives would result in a “federal taking” of even a portion of the leases. First, it is important to recognize that “taking” is a concept of law and cannot be measured by arbitrary standards as suggested by some of the comment letters received from the operators (i.e., some operators suggest that prohibiting drilling of any 40-acre bottom hole location would result in a “federal taking”). Second, the leases may not give the operator’s carte blanche to extract every molecule of natural gas from the leasehold regardless of environmental consequences of such actions. BLM must balance the need for maximum economic recovery with the need to protect natural resources and environmental quality on the leased lands (43 CFR 3162.1(a)). BLM believes the mitigation measures proposed by the RP Alternatives are reasonably related to a legitimate public purpose in that they prevent or reduce what is identified in the DEIS as significant threats to the environment. The BLM has a strong public interest in preventing undue and unnecessary damage to natural resources in the PAPA. Protecting these resources may necessitate restricting surface damage in portions of the PAPA and/or limiting the pace of development to preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources in the PAPA. Third, by proposing mitigation measures that restrict the operators to just 4 well pads/section or requiring the use of centralized production facilities, the RP Alternatives do not destroy the entire bundle of rights provided by the lease. In other words, it is inappropriate to divide a lease into discrete 40-acre bottom hole segments and attempt to determine whether rights in a particular segment have been entirely abrogated. Rather, such a determination should focus on the character of the action and on the nature of the interference with rights in the lease as a whole. BLM does not have information to demonstrate that mitigation measures are not reasonable. One way to solve the issue of correlative rights would be to form a unit.

**Comment 34:** This comment concludes that the difference between the percentage of the PAPA disturbed by the SS and RP Alternatives does not justify the costs to the operators associated with the RP Alternatives. The problem with such a conclusion is that it greatly oversimplifies the analysis and assumes that the only impacts that merit mitigation (at least according to the comment) are related to direct surface disturbance (i.e., acreage removed from production or habitat). Although such a simple conclusion may be adequate to address impacts to a few resources, it fails to consider all the criteria necessary to adequately evaluate impacts to resources such as visual resources, the setting of the Lander Trail, water quality degradation, certain wildlife habitats, etc. In many cases, the intensity of impacts to these resources are more dependent on the density of wells, placement of well pads and associated facilities on the landscape and the frequency of human presence at these well sites than the total acreage the well pads disturb. For instance, the impact to visual resources from drilling of 10 wells in the southern part of the PAPA may be inconsequential even though the wells and associated facilities could collectively disturb over 100 acres. By contrast, the placement of a single well, which disturbs less than 5 acres, may result in a significant visual impact if it were to be silhouetted against the skyline on the Mesa near Pinedale or on a vista overlooking a key viewpoint from the Lander Trail. Similarly, a 1-mile long road constructed over white Wasatch Formation soils on the Mesa face could result in significantly more visual degradation than 20 miles of roads on portions of the top of the Mesa where soil color contrast is less obvious and the area not as susceptible to visual degradation. Another example are impacts to big game. As is documented in the DEIS, impacts to be big game are expected to be most severe where project-related human presence displaces big game from crucial winter ranges. Such impacts are not proportional to direct acres disturbed, per se. The argument made by this comment is a classic “apples and oranges” comparison – the significance of impacts



cannot be judged by acres of disturbance alone.

**Comment 35:** BLM believes the assumption used in the DEIS of an average (emphasis added) of 8 rigs working at any one time year-round is adequate and appropriate for analysis purposes. It is true that a portion of the PAPA is restricted seasonally because of wildlife constraints, however, much of the PAPA is not. See also response to Comment 32, this letter. The estimates of workforce and traffic included on this table were provided by the operators and are considered adequate for purposes of analysis.

**Comment 36:** This comment states that it may be impossible to drill 90 wells per year under the SS Alternative in the PAPA. However, the DEIS table referenced by the comment (Table 2-15) states that, for purposes of analysis, it was assumed that between 60 and 90 wells would be drilled in the PAPA annually. The assumption included in the table is adequate for the purposes of projecting impacts from the Standard Stipulations Alternative. See also response to Comments 32 and 35, this letter.

**Comment 37:** See response to Comment 19, this letter. Part of the BLM's mandate to manage the Oregon Trail is for recreational, educational and interpretive opportunities. This is clear in the National Park Service (1998) and BLM Wyoming's (1985) management plans. Thus, BLM has not closed the trail to vehicular use. A single vehicle, or small numbers of vehicles present a short duration intrusion into the trail setting, usually limited to only an hour or two. No permanent scars result. BLM also monitors the condition of the trail and has a multi-year photographic record of the Lander Trail in the project area.

**Comment 38:** The BLM has reviewed the National Park Service EIS and can find no reference to the recommendation contained in this comment in the description of Alternative 2 – Enhanced Conditions and a Historic Trails Partnership (the Proposal). Although the National Park Service recognizes that BLM requires a 0.25 mile buffer around the trail under Alternative 1, the BLM can find no reference that this same buffer is recommended by the National Park Service for non-significant segments of the trail under Alternative 2.

The DEIS has mistakenly represented the NPS listing of “contributing” or “non-contributing” trail segments as representing some special designation. The National Park Service plan does not do this. To clarify the confusion, we submit that the comment is incorrect when it suggests that the Lander Trail in the project area is “non-significant” because the Park Service did not recommend the trail segment as a “contributing” segment in its plan. The Federal land managing agency with jurisdiction over the trail (in this case, BLM), in consultation with the SHPO, determines the integrity of any given Oregon Trail segment. In 1998 as part of scoping for the Anticline EIS, BLM conducted a tour of some 35 miles of the Lander Trail in the EIS area, and beyond (from Buckskin Crossing to the Deer Hills). In attendance were the Wyoming SHPO historian and the Oregon-California Trails Association (OCTA) Wyoming Trails coordinator, and BLM's cultural resource specialist and field office manager. All parties in attendance concurred that the Lander Trail in the EIS study area is in pristine condition, is of National Register quality, and recognized the viewshed problems created by the flat terrain found where the anticline crosses the Lander Trail. The only disturbance along the Lander Trail in the entire PAPA (as the EIS recognizes) occurs where the existing north/south anticline road/sales pipeline crosses the Lander Trail in Section 29, T30N, R108W. Here also, El Paso Natural Gas drilled their #2 well in 1955, prior to BLM's more stringent environmental review process resulting from the passage of the Federal Land Policy and Management Act (FLPMA) of 1976.

**Comment 39:** Table 2-15, referenced in this comment, is a summary of impacts that would be expected to occur from implementation of the various alternatives considered in the DEIS. The statement contained in the table regarding noxious weeds is correct. Even with appropriate control, noxious weeds may become established in portions of the PAPA where they did not exist prior to development.

**Comment 40:** The comment suggests that the Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities (see Appendix A of the DEIS) are adequate to deal with sensitive soils and that the additional mitigation opportunities discussed for the RP Alternatives are unnecessary to further reduce impacts to these soils. However, the comment fails to recognize that most of the RP Alternative mitigation opportunities for sensitive soils are based on the recommendations contained in stipulation #10 of the guidelines (see page A-13). The first recommendation in stipulation #10 is to minimize disturbance, which the RP



Alternatives would achieve by limiting the number of well pads (and consequently road and pipeline corridor) within the SRMZ. The mitigation requirements for the Blue Rim Area contained in the DEIS are relevant and reasonable. They identify mitigation that could be applied to improve the project consistent with CEQ regulations (see Letter, 1, page 2, paragraph 1 – EPA). See also response to Comment 27, this letter.

**Comment 41:** See response to Comment 30, this letter.

**Comment 42:** The statement in the DEIS referenced in this comment is not a direct quote of 40 CFR 1505.2(c), as this comment suggests. Quotation marks were not placed around the text in the DEIS as suggested by the comment. The context in which the statement is made regarding monitoring in the DEIS is correct. Must and shall are synonymous. The authorized officer determines under what circumstances monitoring is applicable.

**Comment 43:** BLM disagrees that the statements are contradictory. The statement on page 4-4 of the DEIS simply states that monitoring would occur using the process outlined in Appendix F (the AEM planning process). The statement referenced by the comment on page 2-52 of the DEIS says essentially the same thing – they are not contradictory. BLM has determined that the AEM planning process will be adopted for the PAPA. EPA, in their role as final arbitrator of the adequacy of all NEPA documents, agreed that the AEM planning process would play a key role in monitoring future development in the PAPA (see Letter 1, Comment 1). See also response to Comment 7, this letter.

**Comment 44:** As was stated in the DEIS, the BLM has determined that the AEM planning process will be adopted for future development in the PAPA. Regardless of which alternative is ultimately selected for this project, BLM believes that much remains unknown about the degree and severity of potential impacts of the project on the human and natural environment. Mitigation eventually adopted by BLM in the ROD may or may not be effective in minimizing impacts. This fact alone demands that monitoring of project activities occur. BLM has a responsibility to protect the natural resources on Federal lands and minerals in the PAPA and that public trust necessitates diligent monitoring of the impacts of the project. Although BLM welcomes and encourages the participation of the operators in the design and implementation of the AEM planning process, BLM is and will remain the final decision maker regarding the need for and adequacy of monitoring programs in the PAPA. As such, BLM will not “negotiate” the monitoring program but rather will rely on the AEM planning process to design the monitoring program. The reference to the plans developed for Continental Divide/Wamsutter are not pertinent to the PAPA. Also, please refer to Letter 1 from the EPA which fully supports BLM’s decision to proceed with the AEM planning process. See also Comment 7, this letter.

**Comment 45:** It is obvious that the fewer wells drilled, the lower the amount of royalty the government will receive. However, it is impossible, as this comment suggests, to quantify the amount of royalty reduction when so little is known about the PAPA’s ability to economically produce reserves. The cost/benefit analysis requested by this comment cannot be completed, nor is it appropriate. The trade-off incorporated into the RP Alternatives is not based on dollar value, or on the amount a disturbed acreage, but on the ability to sustain resources in the PAPA (such as the viewshed, wildlife habitat, etc.). Also see response to Comment 34, this letter, which demonstrates why it is inappropriate to correlate acres disturbed to the intensity and/or significance of impacts to many resources.

**Comment 46:** The comment is correct in stating that the analysis of compressor station noise impacts on sage grouse assumed that 26,000 hp of compression was located at a single site and this may indeed represent a “worst-case” situation from a noise analysis standpoint. However, recent conversations with the operators have confirmed that the possibility of installing 26,000 hp at a single site in the PAPA cannot be ruled out. Therefore, for purposes of analysis, the assumption is legitimate.

**Comment 47:** Air and Noise Mitigation Opportunity 5 only points out that installing compressor engines with NO<sub>x</sub> emissions of 1.0 g/hp-hour would further reduce impacts to air quality. Including this mitigation opportunity in the DEIS is consistent with the CEQ requirement to address all relevant and reasonable mitigation measures that could improve the project, even if they are outside the jurisdiction of the lead agency. The DEIS already states that WDEQ/AQD determines acceptable emission levels during permit review in Section 2.5.8 of the DEIS on



page 2-27. See also response to Letter 3 – National Park Service.

**Comment 48:** For purposes of analyzing potential impacts to air quality, it was assumed that up to 26,000 hp of compression could be installed at a single compressor station site. This assumption, although probably conservative, is appropriate considering the fact that the possibility of installing this amount of compression at a single location exists.

**Comment 49:** This comment is correct.

**Comment 50:** The DEIS states, "When water wells are drilled by the operators, they would seal off the upper aquifers (up to 500 feet) that supply water to the livestock wells to avoid drawdown and potential contamination of that water supply." The "500 feet" sealing off depth is variable depending upon the location and geology of nearby stock water wells. The "sealing off of shallow aquifers" may be less than 500 feet of depth. For example, should a nearby stock water well be 100 feet deep, then the operator's water well could be sealed off only above 300 feet. The DEIS lists a variety of "groundwater mitigation opportunities" that could voluntarily be adopted by the operators to protect nearby livestock water wells from drawdown and contamination by the operator's new water wells. Section 4.13.2.3 states, "The BLM cannot impose these mitigation measures because the jurisdiction for groundwater management lies with the State of Wyoming." Basically, livestock water wells within the PAPA tap shallow, low flow volume aquifers (3 to 25 gpm) from 50 to 300 feet of depth. Operator water wells are generally drilled deeper from 400 to 800 feet to tap high flow volume aquifers (50 to 100 gpm).

**Comment 51:** Yes, the terms, "specific conductance" and "source options" in the first sentence leave unclear meanings and may be poor word choices. The first sentence might be better stated as, "The operators should monitor and maintain laboratory water analysis records of all new water supply wells drilled in the project area to evaluate any changing water quality in the event some mitigation is required if nearby livestock water wells should develop problems (like reduced water flow volumes and higher salt content)." The recommendation of utilizing a qualified hydrologist to monitor both existing stock and operator water wells for changing groundwater levels and water quality makes good sense where professional data could be gathered to protect both operators and livestock ranchers in resolving potential water conflicts. Part of the jointly hired hydrologist's job could be to correlate aquifers from SP logs and conduct modeling to show regional impacts. Such studies could allow operators to position new water wells to yield the highest possible flow rates and water quality while best protecting nearby stock wells. The potential hazard of benzene found in the gas stream of some producing gas wells (especially in the southern portion of the PAPA) could also be monitored to protect the groundwater from any contamination.

**Comment 52:** A-4 refers to that part of Appendix A identified as A-4 Erosion Control, Revegetation, and Restoration Plan (ERRP) found on page A-26 in the DEIS.

**Comment 53:** The statement in the DEIS contains no reference to page A-2 of the DEIS. Rather, it is describing the conclusion reached in the DEIS that slopes in excess of 15 percent are considered sensitive sites which may require a more comprehensive ERRP.

**Comment 54:** See Errata for this page.

**Comment 55:** This conclusion about the inadequate implementation of SWPPP requirements in the PAPA was reached based on inspections of many of the well pads in the project area during preparation of the DEIS. Adequate BMPs are typically absent around drilling or producing locations. The fact that an operator has developed an SWPP plan does not, in and of itself, mean that compliance with the requirements is achieved. Storm water controls need to be installed, inspected and maintained. There is no evidence in the PAPA that such careful, diligent implementation of appropriate BMPs is occurring. The statement that EPA has concluded that potential discharges from disturbance areas less than 5 acres in size is not significant is no-longer correct - the current 5-acre minimum for coverage under a construction storm water general permit will decrease to 1 acre in 2003.



**Comment 56:** See response to Comment 48, this letter.

**Comment 57:** The suggested mitigation opportunity is correct as written.

**Comment 58:** See response to Comment 48, this letter.

**Comment 59:** See response to Comment 22, this letter.

**Comment 60:** The suggested mitigation opportunity is correct as written.

**Comment 61:** The comment misquotes the DEIS. Wildlife Mitigation Opportunity 13 does not, in any way, prohibit placing a well pad or road within 8 miles of a sage grouse lek but was intended to inform operators that, if choices for well pad and road locations can be made, they could consider choosing locations that have little potential as high quality nesting habitat. High density sagebrush may be suitable nesting habitat, even though 8 miles from the closest lek. Research available at the time the DEIS was printed indicated that all sage grouse nests were within 8 miles of a lek (see C.E. Braun et al, 1977. Guidelines for maintenance of sage grouse habitats. Wildlife Society Bulletin 5(3):99-106). However, the most recent Guidelines for Management of Sage Grouse Populations and Habitats (Connelly, J.W., et al. 2000. Idaho Department of Fish and Game, Pocatello), published after the DEIS was printed, indicates that nests may be anywhere there is suitable habitat and that nest location is not dependent on distance to the nearest lek.

**Comment 62:** Please refer to Letter 4, Comment 17 from the USFWS which suggested that this mitigation opportunity be expanded to require netting of reserve pits if they present a threat to migratory waterfowl or any other bird.

**Comment 63:** See response to Comment 44, this letter. BLM anticipates proponent cooperation in appropriate monitoring. After all, it is the activities of the proponents that create the need for monitoring.

## **Letter 8 - Anschutz Wyoming Corporation**

**Comment 1:** See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc.

**Comment 2:** During preparation of the preliminary DEIS, BLM requested the operators review Chapters 1 and 2 for technical accuracy. Anschutz and other operators submitted comments on these chapters. The operator's comments on Chapters 1 and 2 were considered during preparation of the DEIS. The comments are not reprinted here nor are specific responses to those comments provided.

**Comment 3:** The comment does not provide clarification as to how such an "overarching" rule would be implemented. However, BLM cannot "waive" all restrictions as suggested by this comment. The lease terms (see Table 4-2 of the DEIS), the Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities (see Appendix A of the DEIS), and the Pinedale RMP contain a number of restrictions which cannot be waived. However, as the DEIS states, one time exceptions may be appropriate. It is important to point out that these are not new mitigation measures being imposed by BLM as part of the RP Alternatives. They will be implemented regardless of which alternative is selected in the ROD.

**Comment 4:** Although the initial producing rate may be too high, BLM's Reservoir Management Group (RMG) used the decline curve for recoverable reserves to evaluate economics, not the initial producing rate (see Appendix D of the DEIS). The estimated costs of directional and vertical drilling are lower in the RMG analysis, as suggested by this comment. However, BLM believes that drilling costs would decrease over time as more drilling experience is gained by the operators in the PAPA. Gas prices used in RMG's analysis were already adjusted for gathering, shrinkage and fuel. Finally, BLM does not believe the costs associated with water disposal would greatly influence the conclusions reached in the evaluation. As Anschutz's comment states, the revised estimates do not change the general conclusions contained in RMG's report.



**Comment 5:** BLM concurs that significant restrictions will be applied to development in T. 32 N., R. 109 W. However, it is important to note that most of the restrictions included in this comment (with the exception of the Mesa Breaks) would be applied regardless of which alternative is selected in the ROD. The restrictions addressed in the bullet list in this comment result from lease term stipulations, the Pinedale RMP and Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities. These restrictions were in place when Anschutz acquired these leases in 1999. As can be seen on Figure 2-5 on page 2-16 of the DEIS, T. 32 N., R. 109 W. includes a number of sage grouse leks and raptor nests for which surface occupancy restrictions would be applied regardless of which EIS alternative is implemented. In addition, riparian, wetland and perennial stream buffers, and steep slopes affect significant portions of the township. Like raptor nests and sage grouse leks, BLM would impose surface occupancy restrictions to protect these resources regardless of what alternative is chosen in the ROD. These are not new restrictions being imposed by BLM as part of the RP Alternatives.

In bullet 4, Anschutz states that additional restrictions may be imposed based on unknown cultural sites, new raptor nests, sage grouse leks, etc. This is a true statement. But, as was discussed above, the additional restrictions contemplated by this comment would be applied regardless of which EIS alternative is chosen in the ROD.

We are unaware of a request from Anschutz for cultural sites. We have discussed resource values on leasehold that Anschutz has recently obtained. While a map of the location of all "cultural sites" on BLM land is a request for information that is proprietary, we will work with Anschutz in the office to go over their leasehold and identify areas where we see sensitive values. This was our process with Ultra; continues to be our process with Questar, and is available to Anschutz.

**Comment 6:** As is stated in the DEIS, BLM agrees that the RP Alternatives could increase the cost of developing portions of the PAPA (according to at least 1 operator, costs may actually decrease if centralized production facilities, an option considered viable under the RP Alternatives, is employed in the PAPA) and the alternative could result in some reserves being unrecovered (which is concluded in Section 4.1.4 of the DEIS). BLM must balance the need for maximum economic recovery with the need to protect natural resources and environmental quality of the leased lands (43 CFR 3162.1(a)). As the comment suggests, the alternative may indeed make some wells uneconomic to drill. However, BLM believes the mitigation measures proposed by the RP Alternatives are reasonable.

BLM concurs that one objective under the regulations is to provide for maximum ultimate economic recovery while protecting other natural resources (see 43 CFR 3162.1(a)). Also, FLPMA regarding the management of use, occupancy and development of the public lands (Section 302(b)), requires the "Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." BLM must preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA. The DEIS clearly and accurately demonstrates that unnecessary and undue impacts will occur to resources in the PAPA. The RP Alternatives would be one way to reduce undue and unnecessary impacts.

The BLM has a strong public interest in preserving, to the extent practicable and reasonable, and preventing undue and unnecessary damage to natural resources in the PAPA and protecting these resources may necessitate restricting surface damage in portions of the PAPA. However, as stated in the response to Letter 7, Comment 3 (Gene R. George & Associates, Inc.), BLM does not agree that sufficient information is known to conclude that the RP Alternatives would result in an economic taking, as this comment suggests. The fact that the alternative may preclude the operator from drilling a well is not grounds for a lease taking. The statement that such occurrences may be widespread is speculative and certainly BLM cannot unequivocally declare the RP Alternatives as technically and economically not feasible based on the scant information available from the PAPA to date. In addition, this comment neglects to address the fact that a second RP Alternative development option, using centralized production facilities, is available to the operators as a means of preventing significant damage to natural resources in the PAPA. No information is provided suggesting this option is either technically or economically not feasible. See also response to Comment 3, Letter 7 (Gene R. George & Associates, Inc.).



**Comment 7:** What this comment fails to recognize is that the 37 percent of the locations will be impacted regardless of which alternative is selected in the ROD. These restrictions are the result of existing stipulations that were in place when Anschutz acquired the leases in 1999. BLM would impose surface occupancy restrictions at these locations to protect the natural resources regardless of what alternative is chosen in the ROD. These are not new restrictions being imposed by BLM as part of the RP Alternatives. See also response to Comment 5, this letter.

**Comment 8:** The BLM's analysis of directional drilling on the anticline consists primarily of the added costs of directional drilling if no problems are experienced during the drilling operation (see Appendix D). While complications with sloughing shales and differential sticking can occur during the drilling of any well, BLM agrees that the chances for these problems are greatly increased with directional drilling. The increased risk of drilling complications and the associated additional costs, as well as the increased possibility of lost reserves should be factored in when analyzing the impacts of directional drilling.

**Comment 9:** What Anschutz is requesting is that BLM unilaterally waive the restrictions contained in the lease terms, the Pinedale RMP and Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities. These restrictions were in place when Anschutz acquired these leases in 1999. BLM cannot unilaterally waive these restrictions, as suggested by this comment.

**Comment 10:** The BLM has allowed the operators the opportunity to review maps of area cultural sites. The BLM is unaware of a request from Anschutz for a map of cultural sites. While a map of the location of all "cultural sites" on BLM land is a request for information that is proprietary, we will work with Anschutz in the office to go over their leasehold and identify areas where we see sensitive values.

**Comment 11:** For the most part, BLM agrees with the statements contained in this comment. However, BLM believes it is important to again point out that the seasonal restrictions described in this comment were in place when Anschutz acquired the leases in 1999. These are not new restrictions being imposed by BLM as part of the RP Alternatives. Appendix A (page A-3) explains exception, waiver, or modification provisions and page A-28 describes procedures for processing applications in areas of seasonal restrictions.

**Comment 12:** See response to Comment 10, Letter 7 (Gene R. George & Associates, Inc). In addition, this comment misquotes Table 2-8. The RP Alternatives management requirements do not restrict the number of rigs north of the New Fork River to no more than 2. Table 2-8 clearly states "only 2 of which would be allowed to work on new locations at any one time north of the New Fork River." All 5 rigs described in this management requirement could work at one time north of the river if 3 were working to directionally drill wells from existing pads.

**Comment 13:** See response to Comment 10, Letter 7 (Gene R. George & Associates, Inc). As the DEIS states, BLM understands the problems associated with limiting rigs in the PAPA. The comment will be considered during preparation of the ROD.

**Comment 14:** The problems pointed out in this comment regarding limiting the number of rigs in the northern part of the PAPA are recognized in the DEIS. However, a unit in the northern end of the project area would overcome many of the problems. See response to Comment 10, Letter 7 (Gene R. George & Associates, Inc).

**Comment 15:** See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc.

## **Letter 9 - Bjork, Lindley, Danielson & Baker P.C. (for HS Resources, Inc.)**

**Comment 1:** Restrictions on well pad locations in proximity to Native American sacred sites would be determined through consultation with the appropriate tribe. There are no established buffers to protect these sites – rather buffers will be established on a case-by-case basis.

**Comment 2:** BLM agrees that the cumulative effect of the restrictions is substantial. The DEIS does provide the



information requested in the form of the Management Areas Map which is contained on Figure 2-11 on page 2-31 of the DEIS, albeit at a scale that is difficult to use for determining the restrictions at individual well pad locations. To produce the map at a scale suitable for individual well location analysis and to distribute such a map as part of the DEIS would have been cost-prohibitive. At the request of the NEPA lead operator (Ultra), BLM provided a set of mylar SRMZ overlays to the operators at 1:24,000 scale. The management areas shown on Figure 2-11 were developed by combining the individual SRMZ maps found throughout Chapter 3 and as described in Section 2.6 of the DEIS.

**Comment 3:** Acres within the Sensitive Viewshed SRMZ can be found on Table 2-6 on page 2-32 of the DEIS. The SRMZ encompasses 38,938 acres.

**Comment 4:** The RP Alternatives would not constitute an “unlawful” amendment to the RMP or HS’ leases. Rather, the RP Alternatives describe reasonable measures which could be imposed by BLM to reduce impacts to that area of the Mesa which has been identified as visually sensitive. The mitigation measures address the manner in which development could occur. Nowhere in the DEIS does the BLM propose to change or otherwise redesignate any of the VRM classifications in the PAPA nor amend HS’ leases. The RP Alternatives were prepared in compliance with CEQ regulations which require that all relevant, reasonable mitigation measures that could improve the project be identified. As EPA concluded in their comments on the DEIS (see Letter 1, page 2, paragraph 1), by identifying measures in the RP Alternatives which reduce impacts to the SRMZ, BLM has complied with the CEQ requirement. Please also see response to Comment 13, Letter 7 – Gene R. George & Associates, Inc.

**Comment 5:** See response to Letter 7, Comment 13 - Gene R. George & Associates, Inc.

**Comment 6:** Again, BLM does not believe that imposing the 15 percent slope limit for disturbance in the Sensitive Viewshed SRMZ would result in the inability of the operators to develop their leases – nor is it an amendment to HS’ leases. Rather, the alternative addresses the manner in which development could occur in the area. By relocating some well pads, roads and pipelines to avoid construction on steep slopes, visual impacts could be significantly reduced. Also, as is discussed in the DEIS, it is important to keep in mind that most of the SRMZ drains directly to the New Fork River which is considered fishery of national significance. Restricting development on steep slopes would also help reduce sediment to the river. BLM considers limiting development on slopes in excess of 15 percent a reasonable, relevant mitigation measure that could improve the project. Such mitigation is to be identified in NEPA documents (see Letter 1, page 2, paragraph 1 – EPA). Also, please see response to Comments 4 and 5, this letter.

**Comment 7:** It is not clear from the comment how the RP Alternatives would “severely restrict (if not eliminate)” the operator’s ability to fully develop its leases. However, BLM agrees that mitigation measures proposed in the RP Alternatives may result in less resource recovery as described in Section 4.1.4 of the DEIS. However, as is stated in response to Letter 7, Comment 33 (Gene R. George & Associates, Inc.), the leases may not give the operator the right to extract every molecule of gas from the PAPA regardless of the environmental damage associated with that level of extraction. Rather, the BLM allows maximum economic recovery balanced with the need to protect environmental quality and natural resources that occur on the lease (see 43 CFR 3162.1(a)).

**Comment 8:** See response to Comment 5, this letter and Letter 7, Comment 33 (Gene R. George & Associates, Inc.).

**Comment 9:** See response to Letter 7, Comment 33 (Gene R. George & Associates, Inc.). The mitigation opportunity was included in response to the CEQ requirement to identify all reasonable, relevant mitigation measures that could improve the project, even if they are outside the jurisdiction of the lead agency (see Letter 1, page 2, paragraph 1 - EPA).

**Comment 10:** During scoping for the DEIS, it was evident that the public was particularly concerned about potential visual impacts to the landscape surrounding Pinedale and along U.S. Highway 191. In many cases, the public were worried that they would be “left out of the process” when well pad and associated facility locations



were selected on Federal lands. Very few residents of Pinedale were aware that BLM posted APDs for 30 days or that they could participate in on-site inspections. This mitigation opportunity was recommended so that public concerns regarding site-specific visual impacts could be considered when well pad and associated facility locations are selected in the project area. The mitigation opportunity is consistent with BLM's commitment to the public to keep them actively involved in all aspects of development of the PAPA.

**Comment 11:** The sensitive viewshed consists of 8,686 acres, or 4.4% of the Pinedale Anticline Project Area. The area is characterized as small relative to the project area. Portions of the sensitive viewshed are on the crest of the anticline, the area that is expected to be the most productive. It is true that the Pinedale RMP Map 2 shows this area as having "very high" potential for oil and gas, but this means that the area has a very high potential for the "occurrence" of oil and gas in the subsurface formations. Any well drilled within this very high rated area will very likely encounter some gas-bearing units in the Ft. Union, Lance, and Mesaverde Formations. The big question is whether or not the well will encounter hydrocarbon volumes large enough to make the well economical or commercially profitable. The statement that the sensitive viewshed is likely unproductive and/or uneconomical may be in error. Only drilling and completing will determine if a well in the viewshed will be economical or not. In general, a well drilled near the crest of the Pinedale Anticline in the sensitive viewshed area has a higher probability of being economical than a well drilled several miles or more away from the crestal position.

**Comment 12:** This comment is misquoting Table 2-8. The table states (for all the alternatives) that well pads would not be allowed in VRM Class II areas "until it could be clearly demonstrated that the well pad and its associated facilities would not result in degradation of the Class II visual integrity." The VRM II language in Table 2-8 is the same as the language in the leases (see Table 4-2 on page 4-10 of the DEIS) and the requirement to protect the area's visual integrity would be imposed regardless of which alternative is selected in the ROD. Table 2-25 on page 4-56 of the DEIS provides a list of potential well pads which are located in the existing VRM II area (assuming 40-acre bottom hole spacing). This table is for disclosure purposes only – it simply informs the public that a number of potential well pad locations would conflict with existing VRM II requirements.

In reference to the portion of the comment regarding the potential well pad analysis contained in the technical report, please refer to page 2-13 of the DEIS which explains how this analysis was conducted. As is stated in the DEIS, the analysis was restricted only to those stipulations included in Appendix A of the DEIS which contains the Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities. The results of this analysis were used to identify the number of potential well pad spots in each of the SRMZs listed on Table 2-6. Because it is conceivable that a well pad could be located in the VRM II area without adversely affecting the area's visual integrity, well pad locations in the VRM II areas were not eliminated in the technical report. The footnotes for the technical report tables are appropriate and do not need modification.

**Comment 13:** No specific recommendations were provided in the comment as to how this discussion should be expanded. BLM believes the discussion contained in the DEIS is sufficient.

**Comment 14:** See response to Letter 7, Comment 33 (Gene R. George & Associates, Inc.).

**Comment 15:** Responses to Ultra's comments are provided in Letter 11.

**Comment 16:** The DEIS recognizes that there are problems associated with implementing all the alternatives. However, the concerns raised by this comment could be solved by forming a unit. Please see response to Letter 7, Comment 10 – Gene R. George & Associates, Inc.

**Comment 17:** As was stated on page 4-165, Mitigation Opportunity 18 would be strictly voluntary on the part of the operators. However, the mitigation opportunity was presented as a measure that could improve the project which is required by CEQ regulations (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 18:** This mitigation opportunity does not refer to fences constructed around production facilities. It describes other existing fences, which may currently restrict migration of big game. The opportunity was designed to mitigate impacts to big game migration that may result from extensive oil and gas development within a



migration corridor. In the PAPA, these corridors are poorly understood but ongoing monitoring may indicate that certain corridors are used by migrating big game. This mitigation opportunity was included to disclose to the public a potentially relevant and reasonable mitigation measure, which could be used to lessen the impacts of development. Modification of existing fences may be necessary to offset cumulative impacts from extensive oil and gas development within a "fence-constrained" migration corridor. Identification of this measure is consistent with BLM's NEPA obligations (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 19:** See response to Letter 7, Comments 7 and 44 (Gene R. George & Associates).

**Comment 20:** BLM has clarified some of the issues surrounding the ethnohistoric study at the March 3, 2000 meeting among the operators, BLM and SHPO. BLM will continue its ongoing consultations with Native American tribal representatives, and document these consultations. On a case-by-case basis, select operators may need to fund Native American consultations. Discussion is ongoing among the operators, SHPO and BLM concerning how much historic site research will be needed in the EIS area. It is accurate to say that operators will only be responsible to record and evaluate historic sites, trails, and historic areas within the anticline. The "Drift" is an important ranching phenomenon that may need additional documentation. Outlying areas will not be studied in this EIS effort. BLM is also looking forward to integrating ongoing local historical research (The Daniel/Green River Ranches Centennial Project, for example) in its efforts. This research is funded by state and private sources, not the operators.

**Comment 21:** BLM has clarified some of the issues surrounding the ethnohistoric study at the March 3, 2000 meeting. The research design will be a joint project among the BLM, the Wyoming SHPO, the operators and consulting archaeologists. The operators will be expected to fund part of the effort; the state and Federal agencies involved will provide their time and expertise at the expense of the respective agencies. The comment asks if the "planning document" is the same as the Research Design and Treatment (Management) Plan referred to in other areas of the EIS. Yes, the PA will definitely establish procedures of managing discoveries, as BLM indicated on March 3<sup>rd</sup>, that is one of the major reasons to have such an agreement.

**Comment 22:** The BLM agrees with the comments and concurs that clarity is needed. The PA should contain clearer language concerning buffers around sensitive sites, and how the decision process works. See also response to Letter 9, Comment 25 (Ultra Resources) for more detail. Recall that the PA attached to the DEIS is a draft, and can and will be changed. Inventory areas, Areas of Potential Effects (APE) and other terms are found in the Wyoming Protocol implementing BLM's National Programmatic Agreement for managing cultural resources. No, the entire PAPA will not be subject to inventory, however, the entire PAPA potentially can (and will) have within its boundaries numerous APEs, as projects are proposed throughout the PAPA. BLM will provide the clarity needed in subsequent drafts.

## **Letter 10 - Mountain Gas Resources, Inc.**

**Comment 1:** Please see the Errata for this page. The statement has been updated as suggested.

**Comment 2:** This comment is not correct. BLM can impose reasonable mitigation beyond those stipulations included in an individual lease (see 43 CFR 3101.1 and 3162). The Special Resource Mitigation Guidelines referenced in this comment are part of the Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities (see Appendix A of the DEIS) and are enforceable regardless of whether they are included in the lease or not.

**Comment 3:** The paragraph referenced by this comment on page 2-15 of the DEIS is not species-specific - it is referring to sage grouse and raptors combined. Table 2-8 on page 2-38 is referring only to sage grouse. The seasonal restriction for sage grouse is March 1 through June 30. The seasonal restriction for raptors is February 1 through July 31.

**Comment 4:** The use of the word "typically" is in keeping with the meaning of the sentence. It informs the public that in most cases the gathering system would be installed adjacent to existing roads.



**Comment 5:** Please see the Errata for this page.

**Comment 6:** Please see the Errata for this page.

**Comment 7:** See Section 4.10 of the DEIS.

**Comment 8:** See response to Comments 20 and 33, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 9:** There is no factual basis for concluding that only 4 wells per year can be developed north of the New Fork River, as this comment suggests. The statement contained in this comment that the RP Alternatives limit the number of rigs operating north of the New Fork River to 2 is not correct. As is stated in response to Letter 8, Comment 12 (Anschutz Wyoming Corporation), all 5 rigs could work north of the New Fork River if 3 of those rigs were drilling from existing pads. See also response to Comments 10, 32 and 33, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 10:** See response to Letter 7, Comment 21 (Gene R. George & Associates, Inc.).

**Comment 11:** See response to Letter 7, Comment 22 (Gene R. George & Associates, Inc.).

**Comment 12:** See response to Letter 7, Comment 23 (Gene R. George & Associates, Inc.).

**Comment 13:** See response to Letter 7, Comment 24 (Gene R. George & Associates, Inc.).

**Comment 14:** See response to Letter 7, Comment 25 (Gene R. George & Associates, Inc.).

**Comment 15:** See response to Letter 7, Comment 26 (Gene R. George & Associates, Inc.).

**Comment 16:** See response to Letter 7, Comment 28 (Gene R. George & Associates, Inc.).

**Comment 17:** See response to Letter 7, Comment 29 (Gene R. George & Associates, Inc.).

**Comment 18:** It is not clear from the comment how limiting the number of rigs would result in more overall surface disturbance in the PAPA. The scenario described in this comment would occur regardless of which alternative is selected in the ROD. However, it is important to point out that impacts are not judged solely based on surface disturbance. This is discussed in response to Comment 34, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 19:** See response to Comment 9, this letter.

**Comment 20:** If the RP Alternative is selected, the ROD would contain direction for implementing the alternative. Many of the problems associated with a drilling rig limit north of the New Fork River could be solved by forming a unit (see response to Comment 10, Letter 7 – Gene R. George & Associates, Inc.).

**Comment 21:** See response to Letter 7, Comment 35 (Gene R. George & Associates, Inc.).

**Comment 22:** BLM and public comment disagree with the conclusion reached in this comment. Production facilities located adjacent to the trail represent a long-term impact on the visual integrity of the trail's setting. Impacts from trail users are very temporary and typically do not affect the long-term visual integrity of the trail viewshed.

**Comment 23:** The RP Alternatives do not limit the number of well pads adjacent to the trail to 2 per section, as this comment suggests. In fact, the RP Alternatives would allow up to 16 well pads/section if centralized production facilities were installed as discussed in response to Comments 17 and 18, Letter 7 (Gene R. George & Associates, Inc.).



**Comment 24:** It is uncertain how the prediction of 30 to 35 wells drilled in the PAPA annually referenced in this comment was calculated (see response to Comment 32, Letter 7 – Gene R. George & Associates, Inc.). Regardless, for purposes of analysis of potential air quality impacts, it was assumed that 700 wells would be operating coincident with 26,000 hp of compression in the PAPA at some point in the future. This assumption, although admittedly conservative, is adequate for purposes of disclosing potential impacts to the public. Even using these conservative estimates, no significant impacts to air quality related values were predicted. The quantity of production used to predict the need for 26,000 hp was 350 MMCFD. Both the horsepower and quantity of production used for the analysis were provided by the operators.

**Comment 25:** See response to Letter 7, Comment 46 (Gene R. George & Associates, Inc.).

**Comment 26:** See response to Letter 7, Comment 44 (Gene R. George & Associates, Inc.).

**Comment 27:** See response to Letter 7, Comment 33 (Gene R. George & Associates, Inc.).

**Comment 28:** A global change is included in the Errata.

### **Letter 11 - Ultra Resources, Inc.**

**Comment 1:** The calculation for risk factor does not need to be corrected. The correct presentation of the risk factor is increased people potentially affected/million people. Because Pinedale's population is only 1,000, the risk factor does not decrease, as this comment suggests. The risk factor remains the same regardless of the number of people potentially subjected to benzene exposure.

**Comment 2:** See Page 2-25 of the DEIS, column 2 for the requested information.

**Comment 3:** The SS Alternative is not considered a mitigating alternative as used in this section. Rather, it is the baseline alternative which describes the development impacts should the RP Alternatives not be implemented.

**Comment 4:** The number of wells described in this section was used as the reasonably foreseeable level of development for future oil and gas development in the Pinedale Field Office Area, not the number of acres disturbed. BLM disagrees that the number of wells is "environmentally meaningless", as this comment suggests.

**Comment 5:** See Errata for this page.

**Comment 6:** See response to Letter 10, Comment 3 (Mountain Gas Resources, Inc.).

**Comment 7:** See response to Letter 10, Comment 2 (Mountain Gas Resources, Inc.).

**Comment 8:** This comment is confusing alternatives. The statement references the analysis of potential well pad sites available using restrictions imposed by the BLM standard stipulations. If only those restrictions are adopted, in theory, around 4,520 well pads would be available in the PAPA (see Page 2-13, Column 2 of the DEIS). The restrictions, which the comment describes as reducing potential well pad locations (such as the Mesa Breaks, sensitive viewshed, etc.), are addressed in the RP Alternatives - not the Standard Stipulations (SS) Alternative as suggested by this comment.

**Comment 9:** This information was provided by the WGFD in consultation with BLM biologists. It reflects WGFD's best estimate of important mule deer winter habitat in the PAPA.

**Comment 10:** See response to Comment 8, this letter.

**Comment 11:** BLM cannot priority rank as it ignores site-specific concerns. Similarly, determining where well pads will go under any of the alternatives must be based on site-specific analysis. It is not necessary, nor is



information currently available, to complete such an analysis at the EIS level. Also see Section 2 of the FEIS for information regarding well density by management area.

**Comment 12:** The suggested language does not change the context of the statement in the DEIS. No change was made.

**Comment 13:** This issue will be addressed in the ROD. See also response to Comment 18, Letter 12 - Questar.

**Comment 14:** The paragraph has been updated (see Errata).

**Comment 15:** Section 2.7 discusses alternatives evaluated in the DEIS, it does not summarize impacts from each alternative. It would be inappropriate to discuss impacts on page 2-34, as suggested. The differences in impacts between the Project Wide and Anticline Crest Exploration/Development Scenarios are described throughout Chapter 4 of the DEIS and are summarized on Table 2-15. As this comment suggests, differences in impacts are expected for a number of resources depending on where development occurs (i.e., project wide or restricted primarily to the crest of the anticline). In fact, separate sections are incorporated into appropriate resource impact assessments in Chapter 4 to explain the impacts predicted for each scenario.

**Comment 16:** See response to Letter 10, Comment 2 (Mountain Gas Resources, Inc.) and standard Lease Notice 1 which includes the 0.25-mile buffer around occupied dwellings.

**Comment 17:** The comment requests BLM to identify a specific level of development which would be allowed in VRM Class II areas. BLM cannot do this. The analysis necessary to evaluate even a single well location within the VRM II area would be extensive. For instance, it may be necessary to complete a number of visual simulations for a single well pad and its corresponding road and pipeline to determine if it is feasible to install the well without adversely affecting the visual integrity of the Class II area. Because of the site-specific nature of the analysis, it is impossible to predict how many (if any) wells could be developed in the VRM II area without adversely affecting its visual integrity. The ROD will provide guidance for visual resource management.

**Comment 18:** The statement that the comment suggests adding to the end of the VRM II discussion for the RP Alternatives is not correct. Preservation of visual integrity in the VRM II areas could result in denied access and no surface occupancy on leases within the VRM II area. It is important to recognize that any development permitted in VRM II areas would likely be an exception rather than the rule.

**Comment 19:** It is not clear from this comment how the 15 percent slope restriction would reduce the number of well pad locations in the Sensitive Viewshed SRMZ. The purpose of the slope restriction is to establish criteria for selecting the 4 well pad locations/section within the SRMZ – it is not intended to eliminate well pads, roads and pipelines. The RP Alternatives anticipate that locations would be found which are 15 percent or less slope.

**Comment 20.** The VRM II areas on the Two Buttes quad are not contained within the Sensitive Viewshed SRMZ because they are not visible from one of the 6 visual simulation points near Pinedale or along the northern portion of U.S. Highway 191. This does not mean that they are exempt from VRM II management objectives.

**Comment 21:** There is no conflict between the RP Alternatives mitigation requirements for antelope winter range and the Lander Trail. Separate recommendations are made for both resources which happen to occupy the same area. In the ROD, BLM will determine how the area mentioned in this comment will be managed. Also, please see Section 2.6 of the DEIS which describes Management Areas for Resource Protection.

**Comment 22:** Avoid means to keep away from.

**Comment 23:** See response to Letter 10, Comment 2 (Mountain Gas Resources, Inc.).

**Comment 24:** See Figure I.F-6 on Page 45, Wildlife Technical Report.



**Comment 25:** BLM consults with Native Americans to elicit their comments pursuant to certain regulatory mandates and Executive Orders requiring Federal agencies to consult with tribal governments (cf. The National Historic Preservation Act of 1966 as amended; the Native American Graves Protection and Repatriation Act; Executive Order No. 13007; Indian Sacred Sites). The purpose of consultation with tribes is to elicit tribal concerns about a Federal agency action and to identify sites or locations of religious or cultural significance to the tribe. BLM's authorized officer, after taking into consideration comment from all interested parties, including input derived from Native American consultation, makes a decision. Decisions are based not only on comments from state and local government, the public, and tribal governments, but upon practical considerations, topography and other resource protection needs. We emphasize that the Federal government's relationship with the tribes is a government-to-government relationship, similar to the relationship the Federal government has with foreign powers. Federally recognized tribes (such as the Eastern Band of the Shoshone, the Shoshone/Bannock, the Ute Nation, and the Arapaho Tribe) are sovereign entities within the boundaries of the United States, so a special relationship exists among BLM and the tribes when consultation occurs. We agree that the section is somewhat ambiguous, however, consultation with tribal representative is ongoing, and consensus has not been reached concerning avoidance distances, what types of features are sensitive and how to take into account tribal recommendations throughout the PAPA. We recommend that the commentor (and any other operators concerned with this aspect to the EIS) keep in close touch with BLM as we continue consultations.

Regarding the Lander Trail: As stated in response to Comments 14 and 38, Letter 7 (Gene R. George & Associates, Inc.), BLM maintains (and always has) responsibility for the Lander Trail on BLM lands in the PAPA.

Regarding avoidance distances: BLM agrees with the comment concerning the need for "understanding the rules" in determining avoidance distances. For clarity's sake, generally archaeological resources won't have any avoidance distances at all (rock shelters and rock art sites are exceptions). Avoidance distances generally apply to the Lander Trail and to sites/areas considered sensitive to modern day Native Americans.

**Comment 26:** This comment is correct. Please see Errata for this page.

**Comment 27:** The DEIS does not state that under the RP Alternatives the entire Sensitive Viewshed SRMZ would be managed as VRM II as this comment suggests. The DEIS only states that additional visual protection would be afforded to the SRMZ. See also responses to Comments 12 and 13, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 28:** The RP Alternatives are responding to the NEPA requirement that all relevant, reasonable mitigation measure that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or cooperating agencies (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 29:** See response to Letter 7, Comment 10 (Gene R. George & Associates, Inc.).

**Comment 30:** BLM disagrees that the wildlife restrictions actually reduce the pace of development. In fact, the opposite may be true. What occurs in areas where wildlife restrictions are very extensive is an accelerated pace of development during the summer months. The restrictions actually increase the pace of development by constricting a normal years drilling cycle to only part of the year. The RP Alternatives would address the pace of development by limiting the annual peak of development (thus reducing traffic, human presence, emissions from drilling rigs, etc.). See response to Letter 7, Comment 32 – Gene R. George & Associates, Inc.

**Comment 31:** BLM does not disagree with the scenario laid out in the comment. The costs laid out for the five wells that have been directionally drilled show the substantial increase in cost. Under "Revenue" the comment shows how under an assumption that each 40-acre parcel contains 4 BCF of recoverable gas reserves, which is reasonable, and the original gas-in-place (OGIP) for each 40-acre parcel would be approximately 5 BCF. The OGIP for a 640-acre section would be approximately 80 BCF. It is amazing how quickly the lost royalty and taxes start to add up if directional wells are not drilled due to economics. This does a good job of explaining the potential lost revenue.



**Comment 32:** The FEIS includes Section 2 which demonstrates a process whereby well site location, well density, and impact management could be implemented. This is provided for public review and comment.

Funding allocation adjustments to support APD issue and compliance will be requested by the Pinedale Field Office Manager as deemed necessary. BLM also has the option of requesting staff assistance from other field offices not heavily impacted by oil and gas activity.

**Comment 33:** The text in the DEIS states that the 3.35 BCF applies to vertical wells and the 3.95 BCF applies to directional wells.

**Comment 34:** BLM does not believe the public has been confused. The assumptions used are appropriate for purposes of analysis. They are based upon the best information available relative to technical feasibility. Each alternative uses different assumptions with reality falling somewhere among them.

**Comment 35:** The benefits are identified in Chapter 4 of the DEIS.

**Comment 36:** Comment noted.

**Comment 37:** See Errata for this page.

**Comment 38:** Refer to the response to Comment 34, this letter.

**Comment 39:** The DEIS statement is correct. Current regulations provide relief for existing wells but not for exploratory or new development wells.

**Comment 40:** This comment states that sage grouse nesting habitat seasonal restrictions limit drilling in the PAPA to 4 ½ months. This is not correct. The sage grouse nesting habitat seasonal restriction is from March 1 through June 30 – therefore, 8 months of the year are unencumbered by this seasonal restriction, not 4 ½ months as claimed by this comment. See response to Letter 7, Comment 32 (Gene R. George & Associates, Inc.). The assumption contained in the table of 40 to 60 wells drilled annually under the RP Alternatives did not restrict activities to just the Anticline Crest as this comment seems to do. Rather, the assumption was based on drilling on private and state lands year round as well as drilling through the winter months in areas without crucial winter ranges. The assumption contained in the DEIS is adequate for purposes of analysis.

**Comment 41:** The comment may be confusing the impact conclusions summarized in this table (Table 2-15) with the management requirements contained in Table 2-8. Table 2-15 correctly concludes that if development is restricted to 1 mile on either side of the anticline crest (which defines the Anticline Crest Exploration/Development Scenario), then only 2 well pads would be located within the residential zones. This is an impact conclusion not a management requirement.

**Comment 42:** Development activities include all activities associated with development of the lease including roads, pipelines, well pads, etc.

**Comment 43:** The assumptions and criteria developed for the visual simulations were reviewed during the workshop collaborative process with the public. The simulations were presented at workshops in Pinedale which were attended by the operators as well as members of the general public. No suggestions were received regarding additional view points to define the Sensitive Viewshed SRMZ from the public – although some BLM personnel suggested that additional points be selected to expand the extent to the Sensitive Viewshed SRMZ. BLM believes the result of the modeling, which was used to generate the Sensitive Viewshed SRMZ, is generally where the biggest concerns regarding visual degradation exist. BLM considers the RP Alternative within the Sensitive Viewshed SRMZ reasonable (see response to Comment 13, Letter 7 – Gene R. George & Associates, Inc.). As is stated in the DEIS, BLM has determined that the VRM classifications in the Pinedale Field Office Area are out-of-date. The ROD will address the process BLM will utilize to update the VRM classifications in the field office area, if necessary.



**Comment 44:** See response to Comment 17, this letter.

**Comment 45:** BLM recognizes the VRM II designation is dated and needs to be updated to incorporate other sensitive areas. However, there is no discrepancy in the DEIS figures addressed in this comment.

**Comment 46:** The 257 identified cultural sites won't eliminate well pad construction because these sites are either eligible for National Register inclusion due to criterion at 36 CFR 60.4(d), that is they contain information important in the prehistory of the area. "Criterion D Sites" (as most archaeological resources can be referred to) simply need to be immediately avoided by ground disturbing activity (no "buffer"), or be subject to the appropriate mitigation, i.e. data recovery/excavation. Generally, archaeological resources won't have any avoidance distances at all (rock shelters and rock art sites are exceptions). Avoidance distances generally apply to the Lander Trail and to sites/areas considered sensitive to modern day Native Americans.

The commentor is correct that the Programmatic Agreement should contain clearer language concerning buffers around sensitive sites, and how the decision process works. See also response to Comment 25, this letter for more detail.

**Comment 47:** See response to Comment 22, Letter 10 (Mountain Gas Resources, Inc.).

**Comment 48:** See responses to Letter 7, Comment 23 (Gene R. George & Associates, Inc.).

**Comment 49:** Although the May 7, 1998 State Director's decision allowed companies to drill up to 31 wells in the unexplored areas outside the Pinedale Anticline, operators have currently shown little interest in exploring this high-risk wildcat area. Few wells have been drilled in this area in the last 2 ½ years, only one well of note was drilled in 1999. A wildcat well was drilled near Ross Ridge in the Fall of 1999 and it was later plugged and abandoned.

**Comment 50:** The FEMA maps used for delineating flood plains were completed in 1977. They have not been amended and are assumed, for purposes of preparing the DEIS, to be accurate.

**Comment 51:** The public has been informed and reminded several times of seasonal restrictions. Those are reiterated in Chapters 2 and 4 where appropriate, not in Chapter 3.

**Comment 52:** The BLM Pinedale Field Office maintains a map of raptor nests which can be viewed by the operators. However, to protect the nest sites, their locations are not made widely available.

**Comment 53:** Where appropriate, resource impact descriptions specifically address the difference in impacts between the exploration/development scenarios. For instance, in Section 4.6.3.3 (see page 4-38 of the DEIS), the description of the Anticline Crest Exploration/Development Scenario specifically states "Development along the anticline crest would substantially reduce impacts to land uses in the PAPA because development would be concentrated along the crest of the anticline." Similarly, Section 4.19.3.3 (see page 4-161) states "Clustered or clumped developments reduce impacts on wildlife habitats from habitat degradation ("zones of effect" surrounding a disturbance source) and landscape fragmentation compared to dispersed patterns of development."

**Comment 54:** Discussion did occur with Don Schram. However, there was no agreement regarding flexibility in construction standards. Decisions would be made on a case-by-case basis.

**Comment 55:** The RP Alternatives would not allow roads to be constructed with the Mesa Breaks. Please refer to Table 2-8 (page 2-38 of the DEIS) where the Deer Winter and Crucial Winter Range mitigation requirements clearly state for the RP Alternatives that "No well pads or other surface disturbing activities would be allowed in the Mesa Breaks Management Area." The RP Alternatives recognize that roads currently exist within the breaks but the alternative would prohibit new road construction within this management area. The comment does not provide any rationale as to why the management requirement cannot be achieved.



**Comment 56:** See response to Comment 17, this letter. BLM's VRM manual provides specific guidance. The public and operators will be involved in the process.

**Comment 57:** Any future reconsideration of the VRM classification in the PAPA would consider the fact that mineral leases exist. Because the DEIS does not redesignate VRM classes in the PAPA, such a statement is inappropriate in the DEIS.

**Comment 58:** Comment noted. The table was not updated as BLM expects further changes in lease operators in the future.

**Comment 59:** Areas of historic concern are shown on Figure 3-12 of the DEIS. Areas of cultural concern and Native American sacred sites are not shown on maps in the DEIS to protect the sites from potential vandalism and looting. While a map of the location of all "cultural sites" on BLM land is a request for information that is proprietary, we have worked with Ultra in the BLM office to go over their leaseholds and identify areas where we know of sensitive values. In fact, this was the first thing the BLM cultural specialist did when Ultra first approached BLM about developing leaseholds near the Mocroft Ranch.

**Comment 60:** The comment is correct that the PA should contain clearer language concerning buffers around sensitive sites, and how the decision process works. See response to Comment 25, this letter for more detail.

Concerning delays for operators when they try to develop leaseholds in sensitive Native American Indian areas: The operators should expect there to be delays in these sensitive areas. BLM would be remiss in its government-to-government relationship when consulting with tribal representatives on undertakings in such sensitive areas. See also response to Comment 25, this letter for more detail.

Regarding access to lands in Sections 21 and 28: The request for access across these lands was to develop Ultra leaseholds on private surface/private minerals lands. An internal environmental review of the proposal identified a multitude of resource conflicts including, but not limited to : 1) Highly sensitive cultural values, 2) Objection by recognized Native American Tribal Representatives, 3) Violation of Class II VRM classifications, 4) Conflict with deer and moose winter ranges, 5) Eagle and other raptor nesting areas, 6) steep slopes, 7) fragile soils, 8) conflicts with viewsheds from nearby residents (Bargerville, the Mocroft Ranch, etc), 9) lack of overall transportation planning, and 10) conflict with large mammal migration corridors. The BLM field office staff considered all these resource conflicts when indicating it could not "approve" an access road in this area due to multiple resource conflicts. 200 acres of this land is not now nor has it been leased in the recent (last 15 years) past. Ultra Resources can (and ultimately Anschutz did) access its private leasehold via other routes, much less sensitive to federally managed resources. For BLM to have taken any other tact would have required an EIS (and that is what we are doing now). Ultra Resources was well aware of this issue. Access can be made to the private lands within Sections 34 and 35, and the State of Wyoming lands in Section 36 via (now established) access from the north. In informal review, several BLM staff also saw access from the east as quite viable. Since this is not BLM land, or BLM minerals, BLM was not involved in transportation planning in the area. BLM also chose not to exert any influence on accessing strictly private surface and mineral development.

The statement indicating BLM has no documentation concerning the "cultural issues" in this area is incorrect. BLM has some sixteen years of documentation of sensitive resources in this area, beginning in May, 1984. 1996 was a particularly busy year for BLM in this area, due to implementation of final NAGPRA regulations. BLM finds Ultra's comments on the DEIS as odd in that we shared some of this data with Ultra Resources as early as 1997, indeed, as soon as Ultra suggested developing the area.

**Comment 61:** Regarding the need for a Programmatic Agreement, see responses to Letter 7, Comment 28 (Gene R. George & Associates) and Letter 9, Comments 20, 21, and 22 (HS Resources) in response to similar issues.

**Comment 62:** Nothing in the Draft cultural PA commits operators to "phased development". The term Project Segmentation used in the PA refers to circumstances when it is in the operators best interest to submit requests



for authorizations on project segments, such as long linear pipelines, or 3-D seismic projects. The applicant submits cultural reports of segments of the project, due to the length of time in completing the entire project. If Ultra wishes, we can cease this effort, however this will result in lengthy delays in permitting large, complex or extended projects.

**Comment 63:** The Draft cultural PA would address holistic management of affected cultural resources in the Jonah and PAPA areas. As discussed during the March 3, 2000 meeting, there is much to be gained by the operators in adopting such an approach. Several other operators (Amoco, McMurry, HS Resources, Mountain Gas) see benefit in the PA; however, Ultra is under no obligation to concur or join the ranks.

**Comment 64:** As discussed during the March 3, 2000 meeting, the operators are welcome to work with us in refining the PA. We welcome Ultra's constructive criticism. Ultra is under no obligation to concur or join the ranks of those operators who see benefit in the PA.

**Comment 65:** The BLM concurs with portions of this comment. BLM has repeatedly asked the State of Wyoming to come out with clear direction concerning management of cultural resources on State of Wyoming lands, especially when BLM is a neighbor in field development. Executive Order 11593 (Section 1) reads: "The Federal Government shall provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation....Federal Agencies will institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures, and objects of historical, architectural or archaeological significance." [s/ Richard Nixon, May 13, 1971]. Further, Executive Order 12372 [s/ Ronald Reagan July 14, 1982] enjoins the Federal agency to elicit and accommodate state's views when planning Federal projects, to communicate with state and local agencies early in the planning process to take into account state and local governmental concerns. Our position has been to be a "good neighbor" to the state agency (SHPO), in compliance with EO 11593 and EO 12372. We expect this relationship to continue.

**Comment 66:** The PA annual meeting, if a condition of a final signed PA, would be required. It could easily be scheduled in consort with other PAPA meetings (such as the Adaptive Environmental Management and Transportation Planning meetings) but it would be a separate meeting, with some separate publics, separate agencies (e.g. SHPO as opposed to WG&FD).

**Comment 67:** See response to Comment 21, this letter.

**Comment 68:** The restrictions to be applied will be determined on a case-by-case basis.

**Comment 69:** See response to Comment 14, Letter 7 - Gene R. George & Associates, Inc.

**Comment 70:** The mitigation opportunities can be considered proposals that are being considered as part of the Research Design/Treatment/Management Plan within the PA. Currently, BLM is writing a Native American "Guideline" that addresses issues of interest to the tribes. BLM funds and "enforces" this effort. The annual meeting among BLM and tribal representatives is separate from other meetings and includes discussion among BLM and tribal representatives concerning a broad array of issues, planning efforts, proactive management of resources outside the purview of energy development operators, as well as some discussion of sites threatened by development. It is appropriate to invite representatives from industry to attend the portions of the meetings dedicated to discussing issues concerning energy development threats to sensitive resources. But it is important to recognize that this meeting is much more than an opportunity for solving energy development problems.

**Comment 71:** BLM is unaware of any statement in the DEIS which suggests that flare stacks be limited to no more than 10 feet in height in visually sensitive areas. The DEIS does contain a recommended mitigation opportunity to use low-profile tanks but not restricting the height of flare stacks. However, in discussing this comment further with WDEQ/AQD, they stated they do not have stack height requirements because dispersion is not important (combustion of VOCs is the issue). Therefore, reduced stack heights may be a reasonable method of mitigating visual impacts in sensitive areas.



**Comment 72:** The discussion and conclusion of incremental risk increase from exposure to benzene at residences 350 feet from emissions sources does not fail to recognize WDEQ/AQD's authority and responsibility to regulate HAPs emissions under BACT. It was assumed that the average gas production rate from each well in the analysis was 0.5 MMCFD (based on 700 wells and 350 MMCFD total production). Even though AQD now requires a BACT analysis for estimated emissions of 10 TPY of VOC and 5 TPY of total HAPs (revised from 15 TPY of VOC and 10 TPY of total HAPs as of January, 2000), each individual well would not require a BACT analysis. The total HAPs emission does not exceed 5 TPY per well. See also response to Comment 2, this letter.

**Comment 73:** The BLM Wyodak EIS is not a good comparison to the noise analysis conducted for the Pinedale Anticline DEIS. The Wyodak analysis considered noise levels above 55 dBA to be a "noise impact" whereas the Pinedale Anticline analysis considered noise levels above 49 dBA to be a significant impact. The Wyodak EIS draws separate conclusions for a single compressor for the project alone discussion and the cumulative discussion. Nowhere, in either discussion, do they address the power level of the compressor being analyzed. The Wyodak cumulative discussion states that noise levels around a compressor would be 61 dBA at 1,000 feet from a compressor and 55 dBA at 2,000 feet away whereas the project alone analysis discussion simply states that at 600 feet from the compressor, the noise level would be below 55 dBA. These numbers for the cumulative discussion are very similar to those calculated for the Pinedale Anticline DEIS (61.3 dBA at 1,000 feet and 52.3 dBA at 2,000 feet).

The analysis for the Pinedale Anticline DEIS considered 49 dBA to be the noise level above which a significant impact to noise sensitive receptors could occur. The analysis showed that the distance from a compressor to a noise sensitive area would have to be 2,500 feet to have a noise level below significance (49 dBA). There are no requirements for the 2,500 foot distance, it is merely a statement of the distance where the noise level could be significant.

**Comment 74:** Basically, what the DEIS states is that the amount of sediment that will enter area waters is dependent upon, among other things, total surface disturbance. The smaller the area disturbed at any one time, the less sediment that is generated from upland sites. It is true that under either alternative a total of 700 well pads could be constructed in the PAPA over the life of the project. However, under the RP Alternative's slower pace of development, the total acreage disturbed at any one time would be smaller and there would be a smaller source of upland sediment.

**Comment 75.** The Corps of Engineers does not regulate flood plains although they do regulate certain activities in wetlands. The Corps of Engineers permitting program was considered in the SS and the RP Alternatives as was BLM's wetland avoidance guideline.

**Comment 76.** This criteria was developed specifically for the DEIS for purposes of measuring the significance of impacts to grazing. The criteria was reviewed by cooperating agencies and adopted as a reasonable measure to gauge impacts to the resource.

**Comment 77:** The BLM is not "usurping" the Corps of Engineers ability to regulate flooding and flood plains – the Corps of Engineers doesn't have any such authority. Avoiding placement in flood plains is a standard BLM lease stipulation (see Table 4-2 in the DEIS and Appendix A).

**Comment 78:** Again, avoiding placement of well pads in flood plains is a standard lease stipulation – it was not added as part of the RP Alternatives. As can be seen on page A-2 of Appendix A of the DEIS, any surface use or occupancy within 500 feet of flood plains will be strictly controlled or, if absolutely necessary, prohibited. Exceptions, waivers and modifications are permitted as discussed on page A-2. This comment also seems to question the legitimacy of FEMA's designation of portions of Lovett Draw as a 100-year flood plain. Ultra will need to address those concerns directly with FEMA. For purposes of this DEIS BLM assumed that the FEMA designation was correct.

**Comment 79:** See page 4-133 of the DEIS (Centralized Production Facilities). Reduced raptor perching opportunity is not an issue for threatened and endangered species and was not addressed in Section 4.18.



**Comment 80:** The USFWS Colorado River Endangered Fish Recovery Program requires, for depletion of water in excess of 100 acre-feet from the Colorado River system, a depletion fee to help the recovery program. The fee is established in the biological opinion for the Colorado River threatened and endangered fishes. Failure to pay the fee could result in a jeopardy opinion for the fishes from the USFWS.

**Comment 81:** See response to Comment 52, this letter.

**Comment 82:** See response to Letter 7, Comment 46 (Gene R. George & Associates, Inc.).

**Comment 83:** See response to Letter 7, Comment 61 (Gene R. George & Associates, Inc.).

**Comment 84:** All of the concerns listed in this comment regarding the AEM planning process, other than those that question the need for the process itself, are legitimate and would need to be addressed through the AEM planning team. See also response to Letter 7, Comment 44 (Gene R. George & Associates, Inc.).

**Comment 85:** BLM anticipates that all these groups would be brought together under the auspices of the AEM planning process to avoid duplication.

**Comment 86:** BLM anticipates that all monitoring efforts would be coordinated through the AEM planning process.

**Comment 87:** Preliminary results of wildlife data collection are beginning to become available. Already, BLM has reviewed the results of sage grouse nesting studies conducted in the PAPA. Those data were used to demonstrate the high-level of accuracy of the sage grouse nesting habitat suitability model (see response to Letter 7, Comment 4 – Gene R. George & Associates, Inc.). The comment suggested comparing actual response of big game to year-round drilling – an idea which has merit. However, a more thorough study design needs to be developed and stakeholders engaged in developing the monitoring strategy. The appropriate mechanism for developing and testing such an experiment is through the AEM planning process. See also response to Comment 44, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 88:** See response to Comment 44, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 89:** BLM believes it has met its NEPA obligation by including all relevant, reasonable mitigation measures that could improve the project while at the same time preserving the lease rights of the operators. As is stated throughout the DEIS, there will be significant impacts to a number of resources regardless of which alternative is selected in the ROD. BLM has been forthright throughout the DEIS by concluding that extensive development will result in “industrialization” (as meant by this comment).

**Comment 90:** The ROD will not prioritize mitigation. The ROD will identify what is approved by the decision and list all practicable means to avoid or minimize environmental harm including monitoring and enforcement requirements. On a case-by-case basis through site-specific NEPA analysis, the Pinedale Field Office Manager will determine additional coordination needs (e.g., WGFD, Transportation Planning Committee, public, etc.), required impact mitigation, clearance requirements, etc.

## **Letter 12 – Questar Market Resources Group**

**Comment 1:** BLM disagrees sufficient information is currently available to conclude that the mitigation requirements contained in the RP Alternatives exceed BLM’s lawful authority or that they would deny the lessee “their valid existing rights to develop their leaseholds” as this comment suggests. Please refer to Letter 7, Comment 33 (Gene R. George & Associates, Inc.). BLM believes the mitigation measures proposed by the RP Alternatives are reasonably related to a legitimate public purpose in that they could prevent or reduce what is identified in the DEIS as significant threats to the environment. The BLM has a strong public interest in preventing undue and unnecessary damage to natural resources in the PAPA. Protecting these resources may necessitate



restricting surface damage in portions of the PAPA and/or limiting the pace of development. The RP Alternative mitigation requirements are neither arbitrary or unjustified, as this comment suggests. In fact, Chapter 4 of the DEIS describes in detail how these mitigation requirements would reduce impacts.

In addition, CEQ regulations require BLM to identify all reasonable and relevant mitigation which could improve a project, even if the authority to require such mitigation is outside the jurisdiction of the lead agency (see Letter 1, page 2, paragraph 1 – EPA). Compliance with NEPA compels BLM to analyze impacts from the RP Alternatives. The fact that many of the mitigation requirements included in the RP Alternatives (such as surface pipeline, centralized production, pad drilling) are being used elsewhere, including parts of southwest Wyoming, demand their careful and thorough consideration in the DEIS. In fact, some of the mitigation requirements included in the RP Alternatives were originally advanced by the operators, including the concept of pad drilling and centralized production facilities, as means for reducing environmental impacts in the PAPA. So little is known about the ability of the PAPA to produce economically that it would be inexcusable to exclude any of these mitigation requirements from consideration, as this comment suggests.

**Comment 2:** Each of these issues are addressed elsewhere in this comment letter.

**Comment 3:** The comment states that the 4 well pad/section limit proposed by the RP Alternatives is unacceptable and is unreasonable, but does not provide a reason for these conclusions. BLM agrees that the alternatives would increase the cost of development (although it has been suggested by some operators that utilizing centralized production may actually decrease the cost of development) and states so in the DEIS. However, the comment provides no specific reference to where in the PAPA the limit on well pads would “render otherwise economically recoverable reserves completely unrecoverable in certain instances.” BLM cannot comment on the validity of this statement without knowing the specific area to which the comment refers.

It appears that the comment misses the point as to why the RP Alternatives mitigation requirements limit the number of well pads in certain SRMZs. The limit recommended is not intended to be implemented based on “specific factual circumstances of each potential drill site” (as suggested by the comment) – rather the limits are intended to address impacts which are uniquely associated with well pad density and/or human presence over large portions of the landscape which have unique features which could be adversely affected by dense well pad development or wide-spread, year-round human presence. Examples are the Sensitive Viewshed SRMZ, crucial big game winter ranges, etc.

**Comment 4:** A restriction on well drilling and operations which leaves a substantial portion of the resource unrecoverable, may constitute a taking. But, it is not a simple matter to determine what constitutes a “substantial” portion. It may not be correct to infer that recovery of every molecule of natural gas is a right conveyed in the lease. BLM must balance the need for maximum economic recovery with the need to protect natural resources and environmental quality on the leased lands (43 CFR 3162.1(a)). Refer to the response to Letter 7, Comment 33 (Gene R. George & Associates, Inc.).

**Comment 5:** The statement in the DEIS is correct – most of the project area is pristine. Please refer to Table 3-2 on page 3-5 of the DEIS. As can be seen, total disturbance in the PAPA to date is around 3,200 acres, including roads and towns. In other words, less than 2 percent of the entire project area has experienced any kind of human disturbance. This fact alone substantiates the conclusion that most of the area is pristine. To date, less than 50 wells have been drilled in an area that encompasses over 300 square miles. There are few areas anywhere else in western Wyoming, with the exception of perhaps the national parks and the Wind River Range, which currently have such a low well density.

**Comment 6:** Please see Errata for this page. Questar Gas Management Company has been added to the list as requested.

**Comment 7:** The DEIS contains a number of statements about the legitimate rights of oil and gas operators to develop leases in the PAPA. For instance, see Section 2.2.3, 2.3.1, 2.3.3, Table 4-1, to name a few. Nowhere in the DEIS is it stated that oil and gas is “inherently noxious and illegitimate”, as this comment suggests. Instead



of justifying the action, the DEIS provides an honest disclosure of potential impacts and reasonable mitigation opportunities.

**Comment 8:** This section describes specific proposals by Jonah Gas and Mountain Gas to construct and operate sales pipelines from the PAPA to existing pipeline hubs in southwestern Wyoming. No such proposal was analyzed for a Questar sales pipeline. If Questar proposed to construct such a pipeline, additional NEPA analysis may be required.

**Comment 9:** See response to Comment 1, this letter and Comment 33, Letter 7 (Gene R. George & Associates, Inc.). No explanation is provided in the comment's conclusion that the RP Alternatives would cause "a substantial portion of oil and gas reserves under valid oil and gas leases to become unaccessible and unrecoverable". As noted in the DEIS, the public and environmental community overwhelmingly stated that BLM should allow no more than 1 or 2 well pads/square mile. As CEQ regulations require, BLM must consider all reasonable alternatives. BLM explained that a limit of 1 or 2 well pads/square mile would not be reasonable because it was not feasible technologically or economically and would constitute a taking of lease rights. After careful consideration, BLM determined that the minimum well pad density that should be considered and for which technology exists to implement is 4 pads/square mile from which 4 wells each would be drilled. The DEIS recognizes that economically this may not be feasible (see Appendix D). However, it also states that under the RP Alternatives, a combination of pad drilling and centralized production facilities could be used in sensitive areas to minimize impacts (see Section 2.7.4). BLM believes that the alternatives, as analyzed, are the most certainly reasonable alternatives to the SS Alternative of 16 conventional wells, with production facilities on each, to avoid or minimize environmental harm as much as practicable. The alternatives would not be inconsistent with lease terms and would not unduly constrain exploration and production.

**Comment 10:** BLM evaluated additional protection of the Sensitive Viewshed SRMZ in response to its obligations under NEPA to include all relevant, reasonable mitigation measures that could improve the project. BLM does not believe that limiting development to 4 well pads/section in the SRMZ "prioritizes" the viewshed over other competing, lawful uses of the Federal lands, as this comment suggests. If BLM were to deny access to leases within the SRMZ altogether, then the concern raised by this comment would be warranted. However, BLM has not proposed to do so. What BLM is proposing in the RP Alternatives is to allow development of the leases while still protecting, to the extent possible, the visual integrity of the Sensitive Viewshed SRMZ. Such an approach does not prioritize one use over the other, as this comment suggests. See also response to Comment 13, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 11:** BLM agrees. Graveling requirements will be determined on a case-by-case basis.

**Comment 12:** BLM believes that it has been demonstrated by the five directional wells drilled on the Pinedale Anticline that it is technically feasible to drill directional wells. What has not been demonstrated to date is that directional drilling can be done economically. This is due to the contribution of a number of factors such as higher drilling costs, poor cementing and stimulation procedures, bypassed reserves due to the wellbore angle entering the productive sands, etc. and low productivity.

**Comment 13:** It is the BLM's responsibility to consult with recognized tribal groups when actions BLM takes may affect sites or locales of interest or sensitive to modern Native Americans. In the past, BLM has asked tribal representatives if they wish to have industry representatives present during consultation. If the tribal representatives have no objection, BLM would encourage industry to be represented during consultation. However, industry representatives must recognize that our consultations entail a Federal Trust relationship with the tribes, and respect the fact that highly sensitive issues, locales and religious beliefs are the topic. Because of the sensitivity of some locales, BLM will not make sacred sites available in the EIS. The locales are protected by the Archaeological Resources Protection Act, (ARPA), NAGPRA, and by good common sense. It is BLM's policy to discuss these locales with industry permitting agents and others on a "need to know" basis.

**Comment 14:** BLM concurs. The DEIS states, on page 2-17, that the list is subject to review on a site-specific basis. As was explained in the DEIS, the analysis was used solely to generate the number of potential well pad



locations in each SRMZ shown on Table 2-6.

**Comment 15:** In some cases, using low profile tanks would reduce visual impacts from well pads in visually sensitive areas. It is a reasonable mitigation measure which has been used successfully by BLM in other parts of the country. BLM does not understand the reason why the height of the flare stack should dictate the height of the tanks, as this comment suggests. Flare stacks do not represent the same type of visual intrusion on the landscape as a tank. Also, see response to Comment 71, Letter 11 (Ultra Resources, Inc.).

**Comment 16:** BLM agrees that the NEPA analysis is not limiting as it relates to gas gathering pipelines, well connections, testing, etc, but the EIS is limiting for the sales pipelines based on site-specific impact assessment disclosure to the public (see Comment 17, this letter). It is important to recognize that a specific sales pipeline route was not analyzed in the DEIS for Questar. However, specific routes were analyzed for Jonah and Western. Because the routes defined by these companies were used to assess specific impacts of the actions and because the impacts are specific to the routes analyzed, the routes are considered "limiting" for purposes of NEPA. If Questar desires to construct such a line using a different route, additional NEPA analysis may be required.

**Comment 17:** The term "sales pipeline" was agreed to by the other operators early in the NEPA process. No change in the name of these types of pipelines is deemed necessary.

**Comment 18:** You are correct, as the DEIS clearly states, the extent and nature of future development in the PAPA is unknown at this point in time. However, from a NEPA perspective and in compliance with CEQ regulations, BLM cannot simply identify the operating parameters included in the DEIS as informational references or as non-limiting constraints based on the premise that it is not known what the future development in the PAPA will be.

The operating parameters form the basis of the impact analysis contained in the DEIS. As such, the EIS Record of Decision is inherently constraining and what may or may not be allowed on public lands has to be constrained by the level of impacts predicted to occur based specifically on the parameters used in the DEIS. Therefore, exceedence of a parameter contained in the DEIS could result in additional impacts outside the scope of the EIS and would not be allowed until further environmental analysis is completed.

For example, one parameter and analysis assumption used in the DEIS is the level of NOx emissions modeled for far field (e.g., Bridger Wilderness) impacts. The level of NOx emissions used in the DEIS was provided to BLM by the operators. In the DEIS this parameter, as it pertains to compressors, is a maximum of 377 TPY NOx emissions or, as it pertains to the combined level of NOx emissions from all sources (construction/drilling, compressors, and producing wells), the parameter is a maximum of 694 TPY total NOx emissions. What this means is that BLM cannot authorize rights-of-way for compressors or approve APDs or other activities, under the authority of the Pinedale Anticline EIS, if the level of NOx emissions exceeds the maximum level analyzed in the DEIS. To do so could result in an impact not analyzed in the DEIS as well as be in violation of the NEPA and Council on Environmental Quality regulations. Additional modeling and analysis would be required before a determination can be made as to what increase would be allowed.

You state that no part of the DEIS discussion of gathering should be read as limiting which parties will render gathering services, where their compression facilities will be located, or the maximum amount of compression horsepower necessary to exercise contractual gathering rights in the PAPA. This is incorrect. The purpose of the EIS is to analyze what the proponents indicate they are proposing to do. BLM's ROD, however, cannot specify which parties will render gathering services, but it will specify what the parties that do render such service will be required to comply with on public lands. Since the DEIS has analyzed some compressor site locations (5) for compressor facilities, more detailed analysis may not be needed when BLM actually receives an application for a right-of-way at these sites. Other sites, such as those identified in this letter, not addressed specifically in the DEIS, may require detailed site-specific environmental analysis, including evaluation of alternative site locations, upon receipt of an application for a right-of-way. At that point in time, BLM will also evaluate and determine whether NOx from compression at the new site(s) would be in excess of the maximum level of NOx emissions analyzed in the DEIS.



The ROD will not specify the maximum amount of compression horsepower necessary to exercise contractual gathering rights in the PAPA, but it will specify the parameters that form the scope of the environmental impact analysis completed for the PAPA. If the level of compression would exceed the analysis contained in the DEIS, then additional environmental analysis will be required before granting additional rights-of-way or amending existing rights-of-way.

There is a perceived issue among the other operators, regarding Questar's compressor applications to WDEQ/AQD, in that the level of compressor horsepower (27,000) applied for fully consumes and exceeds all of the compressor horsepower (26,000) analyzed in the DEIS. This is of particular concern to Anticline Project pipeline companies, Jonah Gas Gathering and Mountain Gas, because it suggests that if WDEQ/AQD grants Questar a permit, then the other pipeline companies would be further delayed in obtaining adequate compression to meet their contractual and agreement obligations to transport gas out of the PAPA. They would be delayed in obtaining rights-of-way from BLM for compressors because of an apparent impact parameter exceedence, which would require additional modeling and environmental analysis under NEPA.

Furthermore, the situation is aggravated by the fact that Jonah Gas Gathering and Mountain Gas, early in the scoping process, participated in defining the proposed action and alternatives, including the level of compression estimated as necessary to transport gas production from the PAPA. Questar was asked by Ultra Resources Inc., the lead operator for this EIS, if they wished to have input, to which they responded no. The DEIS air quality modeling and impact analysis then proceeded on the basis of 26,000 horsepower at the sites specifically identified in the DEIS as being more than sufficient to transport anticipated production from the PAPA.

WDEQ/AQD, under state regulation, has informed the BLM that they must process and act upon the Questar permit applications for the compressors applied for. In fact, even if Jonah Gas Gathering and Mountain Gas each applied for 26,000 horsepower of compression, WDEQ/AQD would be required to act upon the applications as submitted for the compressor permits applied for. The burden then falls on the BLM to ensure that actual compressor emission levels do not exceed the scope of what was analyzed in the Pinedale Anticline EIS.

BLM believes that there may be four options available by which this issue can be handled to ensure fairness and ensure actions remain within the scope of the EIS. Three options (1, 2 & 4) offer ways in which to address allocation of the analyzed compression. Option 3 would treat the Questar application as above and beyond the scope of what has been analyzed in the DEIS. The BLM and WDEQ/AQD believe that option 4 offers the most reasonable and flexible means of handling this concern. Following comments on the FEIS, the BLM will carry one of these options forward into the ROD.

- Option 1) Allocate to each pipeline company a percentage of the 26,000 horsepower of compression addressed in the EIS based upon the Federal, state and private lease acreage that each company has under contract and/or agreement for the transportation of gas to a processing facility. Such an allocation could not be made until legal challenges regarding gathering rights in the PAPA are settled.
- Option 2) The BLM could require that any compression-associated facilities proposed to be installed at any site in the PAPA, not identified in the DEIS, include appropriate analysis of additional site and air quality impacts associated with that compression. In essence, BLM would assume that additional compression not located at one of the compressor station sites from which the 26,000 horsepower far field analysis was conducted, would exceed the 26,000 horsepower analyzed in the DEIS.
- Option 3) The 26,000 horsepower of compression analyzed in the DEIS was based on the need to compress 350 MMCFD of natural gas. In this letter, Questar anticipates it would be necessary to install 27,000 horsepower of compression to compress 250 MMCFD. Without additional information from the operators, BLM would assume that the 27,000 horsepower of compression and three new sites proposed by Questar in this letter would be above and beyond the 26,000 horsepower and five sites analyzed in the DEIS. As such, BLM would not permit activities on public lands associated with the compression proposed by



Questar without further analysis of impacts to air quality and appropriate NEPA review. In addition, before any of the additional sites identified by Questar could be used, BLM would require additional NEPA review.

Option 4) BLM could grant new rights-of-way for compressors based upon PAPA monitoring and tracking of actual on-the-ground calculated potential NO<sub>x</sub> emissions (i.e., the level of NO<sub>x</sub> emission from actually constructed/installed facilities based upon the WDEQ/AQD permitted level of emissions per compressor facility, well location, etc.). This scenario is viable based on the fact that a much greater level than 26,000 horsepower could actually be permitted and still remain within the scope of the NO<sub>x</sub> emissions analyzed in the EIS. The actual level of horsepower that could be authorized depends upon the compressor engine NO<sub>x</sub> emissions rating, the level of construction and drilling activity, and the number of wells producing at the time. The following table summarizes this potential.

**Variable Levels of Compression Horsepower That Could Potentially be Available  
for the PAPA While Keeping Within the Scope of the Pinedale Anticline EIS Analysis  
Maximum NO<sub>x</sub> Emission Level Analyzed in the EIS = 694 TPY**

Compressor Rating (grams/hp-hr)	Construction/Drilling Activity/Year	Producing Wells	Potential Compression
0.7 g/hp-hr	0 new wells	700 wells	96,000 hp
	45 new wells	700 wells	76,000 hp
	90 new wells	700 wells	56,000 hp
1.0 g/hp-hr	0 new wells	700 wells	67,000 hp
	45 new wells	700 wells	53,000 hp
	90 new wells	700 wells	39,000 hp
1.5 g/hp-hr	0 new wells	700 wells	45,000 hp
	45 new wells	700 wells	35,000 hp
	90 new wells	700 wells	26,000 hp

Before any of the additional compressor sites identified by Questar could be used, BLM would require additional NEPA review.

**Comment 19:** This comment states that limiting development activities in the Sensitive Viewshed SRMZ to slopes less than 15 percent could actually increase disturbance. It is assumed that the comment means that additional miles of gathering pipeline corridor may be necessary to avoid areas with steep slopes. This may be true. However, it is reasonable to conclude that in many parts of the SRMZ the steeper slopes are much more visible than the less steep slopes and that disturbance on the steep slopes will be harder to reclaim than less steep slopes. Therefore, even though initial disturbance may be more to avoid steep slopes, the long-term visual degradation may be less. Of course, such an assessment would depend on a number of site-specific factors. However, it is also important to keep in mind that the steeper slopes will likely contribute more sediment to area waters. Because the Sensitive Viewshed SRMZ is proximate to the New Fork River in many areas, additional justification in avoiding steep slopes is warranted to avoid sedimentation impacts. Contrary to the conclusion reached by this comment, avoidance of steep slopes in the Sensitive Viewshed SRMZ is "prudent".

The comment regarding steep slopes on page 9 appears to ignore the fact that the RP Alternatives 15 percent slope limitation would apply only in the Sensitive Viewshed SRMZ where the alternative mitigation requirements limit well pads to no more than 4/section. The 15 percent slope limit would be used to identify locations for the 4 pad drilling well pads/section in the SRMZ. Under the RP Alternatives, 3 of the 4 wells drilled from the each of the 4 pads would be expected to be directional regardless of whether 15 or 25 percent slopes were used to select the pad drilling location.

**Comment 20:** Questar appears to disagree with other operators regarding the feasibility of reduced equipment at well pads. The estimate of emergency conditions resulting in the need to visit roughly 5 percent of the well pads during any given winter was provided to BLM collectively by the other operators in the PAPA who also have experience in operating wells in the project area. In fact, McMurtry prepared most of the information regarding emergency visits and the information was provided to BLM only after review by the operators. Amoco has had experience in the Continental Divide/Wamsutter area with operational centralized production facilities. Although



troublesome when first brought on-line, these wells are now performing as expected and the need for daily visits has been virtually eliminated. The comment suggests that eliminating equipment from the well pad may necessitate more visits in the winter and could increase “environmental contamination”, but provides no reasoning for these statements. The type of environmental contamination that could go unabated is not identified. The conclusion that more visits may be necessary contradicts information provided to BLM by the other operators and reported in the DEIS. For purposes of analysis, and because of the lack of specific information to the contrary, BLM will assume that the long-term goal of visiting only roughly 5 percent of the well pads during crucial wildlife periods during any one year is reasonably achievable. See also Letter 78 – Texaco.

**Comment 21:** It is unclear what is meant by “floating” standard. The 10 dBA above background would apply to placement of any new facility. If sage grouse initiated a lek or move an existing lek to a site with noise levels greater than 10 dBA above ambient levels, that behavior could indicate their tolerance for noise and would be useful information. However, no such tolerance or behaviors have been reported to date. In any case, existing background noise would not need to be modified to address noise impacts at a new lek. However, under the RP Alternatives new noise sources would be subject to the limitation.

**Comment 22:** This comment implies that the RP Alternatives mitigation requirements for sage grouse were developed in anticipation of the species being listed as threatened or endangered. This implication is not correct. Certainly, if sage grouse become listed as threatened or endangered or are formally proposed for listing, Questar correctly assumes that more extensive efforts will be made to avoid jeopardizing the species’ continued existence by this or any other land use. BLM would need to review the entire current management situation for the species if it is proposed or listed. However, the comment incorrectly assumes that the RP Alternatives have been developed assuming that the species will be listed. Rather, consistent with BLM policy, the alternatives are designed to help avoid listing of the species and are designed to assure that viable populations of sage grouse are maintained in the project area.

**Comment 23:** The conclusion reached in this comment is incorrect. Table 3-34 on page 3-80 of the DEIS clearly shows that more sage grouse were harvested in 1997 (and other years) than any other upland game bird species. However, harvest data since 1990, provided by the WGFD for the Sublette and Eden USGMAs, shows there were 12,901 sage grouse harvested in 1991 in those management areas combined. In 1997, there were 3,393 sage grouse harvested in the combined areas. Similarly, there were 3,225 hunters utilizing 8,549 hunter days in 1991 and 1,152 hunters spending 3,428 hunter days in 1997; 4.00 sage grouse per hunter in 1991 and 2.95 sage grouse per hunter in 1997; 1.51 sage grouse harvested per day in 1991 and 0.99 sage grouse harvested per day in 1997. In 1991, the hunting season lasted from August 31 through September 30. In order to manage declining populations, while still providing harvest opportunities to the public, WGFD shortened the hunting season from September 20 to October 5 in 1997. The later season was designed to decrease harvest of adult hens. In spite of shorter and later seasons, total sage grouse harvest and harvest per unit effort are still considerably below levels documented in the early 1990s. The same declining trend across Wyoming and throughout their range has been documented by Heath et al (1997. Sage grouse productivity, survival, and seasonal habitat use near Farson, Wyoming. WGFD Completion Report, Cheyenne) and Connelly et al. (2000. Guidelines for management of sage grouse populations and habitats Idaho Department of Fish and Game, Pocatello), respectively. In fact, Connelly et al. recently estimated breeding populations of this species have declined by at least 17 to 47 percent throughout much of its range.

BLM is required to manage all species and their habitats on Federal lands at levels adequate to prevent their listing as threatened or endangered. The comment provides no information to substantiate the claim that sage grouse are not likely to be listed as threatened or endangered. Quite to the contrary, the USFWS has already received a petition to list the species in Washington state. The RP Alternatives would help maintain viable populations of sage grouse in the PAPA.

**Comment 24:** BLM disagrees that applying the RP Alternatives would constitute a “taking” as this comment suggests. See also response to Letter 7, Comment 33 – Gene R. George & Associates, Inc.

**Comment 25:** The statement made in this comment that the RP Alternatives would restrict the number of rigs



working north of the New Fork River to no more than 2 is not correct. The RP Alternatives clearly state in Table 2-8 that no more than 2 rigs could be working on new locations at any time north of the river. Under the RP Alternatives all 5 rigs could work north of the river if 3 of the rigs were drilling from pad locations. It is intuitive that slowing the pace of development would extend activities over a longer time frame. However, as the RP Alternatives concludes, the intensity of the impacts would be lessened at any one point in time.

**Comment 26:** The problems pointed out in this comment could be addressed by forming a unit. See Comment 10, Letter 7 – Gene R. George & Associates, Inc.

**Comment 27:** BLM disagrees that impact significance is evaluated solely on acres of surface disturbed. In the PAPA other factors, such as well pad density, human presences, road and pipeline density, etc. are tremendously important in determining the impacts to a number of resources such as crucial winter range, visual quality degradation, water quality impairment, etc. A complete explanation is provided in response to Letter 7, Comment 34 (Gene R. George & Associates, Inc.).

**Comment 28:** BLM does not disagree with the comment. All the difficulties described are recognized as inherent to directional drilling. However, BLM believes that, as has been demonstrated by the industry in the past, the operators would learn from their experiences and failures on the Anticline and would come to drill the “S” shaped wellbores more efficiently and with minimal risk. Pad drilling was not intended to be applied under exploratory drilling, except to protect isolated sensitive resources. Rather, based on seismic data and exploratory drilling, operators would drill wells until a discovery with economic production potential is made (much as Questar explained to the BLM and to the public during one of the Transportation Planning Committee meetings), and following an evaluation of the site-specific surface resource impacts, then make a determination as to whether there is a need for directional drilling or centralized production facilities to reduce unnecessary and undue impacts.

**Comment 29:** See response to Comment 20, this letter.

**Comment 30:** It is technically feasible to have only a wellhead at the location in conjunction with centralized production facilities (CPFs). This is done with sub-sea development. The comment is correct in stating that the additional cost would be much greater. The comment is also correct in assuming that the realities of onshore production require having production equipment on location. The CPFs more common onshore have production units, blowdown tanks, and water tanks on location. The primary benefit realized with these centralized production facilities is reducing traffic to the location. BLM is in hopes that some of the problems identified can be overcome to further reduce the frequency of human activity at individual locations in certain sensitive resource management areas. See response to Comment 11, Letter 14 -BP Amoco.

**Comment 31:** See response to Comments 20 and 30, this letter.

**Comment 32:** This comment is correct. Please see Errata for page 4-77.

**Comment 33:** Many of the problems raised by this comment could be solved by forming a unit (see Letter 7, Comment 10 – Gene R. George & Associates, Inc.). The DEIS conclusion that centralized production facilities would result in less visual impact recognizes that more equipment may be necessary at the centralized production facility than at individual well sites. However, BLM anticipates that there would be much more flexibility in the location of centralized production facilities than with individual well pads. As such, more opportunities are available to locate the centralized facilities where the visual impact is minimized and where access roads and pipeline corridors are less obvious across the landscape. In addition, one of the primary benefits for centralizing production is the reduced need to visit wells in crucial winter ranges on a daily basis which would significantly reduce stress on wintering animals. All the operators, with apparently the exception of Questar, believe this could be achieved with centralized production.

**Comment 34:** It is incorrect to claim that Ultra was responsible for the 5 percent estimate. The estimate was approved by all the operators and was authored by McMurry. The coordination with BLM would occur after the emergency is remedied. The reason for coordination is to respond to public inquiry and to allow full consideration



of potential impacts in the AEM planning process. See response to Comment 20, this letter.

**Comment 35:** See response to Comment 23, this letter. What Questar fails to recognize in this comment is that the 2 mile restriction to protect nesting sage grouse is a standard stipulation that has been and will be applied to future development in the PAPA (and for that matter throughout southwest Wyoming) regardless of which alternative is selected in the ROD. It is incorrect to imply that the restriction is solely associated with the SRMZ. The entire 2-mile buffer is not closed to activity – only those portions where sage grouse are nesting. See Table 2-8, Sage Grouse Nesting Habitat, on page 2-39 of the DEIS and Wyoming BLM's Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities in Appendix A of the DEIS.

**Comment 36:** See response to Comment 35, this letter. BLM disagrees with the contention that no protection be provided around inactive leks. Even though a lek may no longer be active, the sagebrush habitat surrounding the former lek location was suitable for nesting at one time and, unless land uses change, that area within 2 miles of an inactive lek is still suitable for nesting.

**Comment 37:** The comment incorrectly states that sage grouse are “abundant and flourishing”. As was explained in the DEIS and in the response to Comment 23 (this letter), the consensus among most biologists working with this species is exactly the opposite. There is growing concern that the species may be eligible for protection under the Endangered Species Act. Those items extracted from Appendix A are employed by BLM as standard or best management practices and guidelines. The item cited from page 4-167 of the DEIS is not an 8 mile setback but is clearly described in Wildlife Mitigation Opportunity 13. BLM is uncertain how the information contained in the table is either “inconsistent” or “layered” as the comment suggests. The referenced table lists seasonal restrictions that are taken out of context.

**Comment 38:** Comment 87 from Ultra (see Letter 11) explains the status of the studies. Data are still being collected for the pronghorn and mule deer studies. The sage grouse study was completed after publication of the DEIS. The recently released results of the sage grouse study were used to respond to Letter 7, Comment 4 – Gene R. George & Associates, Inc.

**Comment 39:** These mitigation opportunities are provided to comply with the NEPA requirements that all relevant, reasonable mitigation measures that could improve the project be identified (see Letter 1, page 2, 1<sup>st</sup> paragraph - EPA). BLM disagrees with the statement that it is “ludicrous” that oil and gas operators would employ a landscape architect to develop schemes to hide drilling or production locations. Questar may object to this type of mitigation but landscape architects are frequently employed in other parts of the country to assist in minimizing the impact of energy facilities in residential areas. The mitigation opportunity is both relevant and reasonable.

**Comment 40:** The comment states that glare from solar panels is not a serious problem, but provides no evidence to support this claim. BLM disagrees. This mitigation measure was recommended by the Wyoming State Historic Preservation Office and is based on observations along the Lander and other trails in Wyoming where glare has become evident to trail users. In meetings regarding cumulative impacts to the Lander Trail, the Oregon-California Trail Association concurred that mitigation to reduce glare was necessary. BLM considers this measure reasonable and relevant and not conjecture, as this comment suggests.

**Comment 41:** This mitigation opportunity does not discuss the spacing of wells as this comment suggests. It discusses well pad density – no mention is made of subsurface spacing. See also response to Comment 13, Letter 7 – Gene R. George & Associates, Inc.

**Comment 42:** Grazing permittees on the Mesa do not agree that oil and gas development would result in a “temporary loss of one user's opportunities” as this comment suggests. From the grazing permittee perspective, the fact that oil and gas development will occur over a period likely exceeding 30 years is not cause for concluding that the inconvenience to them is either “periodic or temporary”. In fact, the permittees have expressed a number of legitimate concerns that development will have significant adverse impacts on their operations (see Letter 33 – Sommers Ranch Partnership). The BLM considers this mitigation opportunity to be both relevant and reasonable and it was identified consistent with CEQ regulations (see Letter 1, page 2, paragraph 1 – EPA).



**Comment 43:** See response to Comment 13, Letter 7 - Gene R. George & Associates, Inc.

**Comment 44:** BLM did carry forward a discussion for a ethnohistoric study in the EIS document. We elaborated on this effort at the March 3, 2000 meeting and provided clarification as to the study's purpose and need. The study would be performed by a qualified professional anthropologist and/or historian whose results would be used to help identify, evaluate and avoid or mitigate ethnographic or historical sites potentially threatened by Anticline development. BLM's legal authority to require such efforts can be found in FLPMA and Section 6 of the Oil/Gas Lease Terms. Section 6 of the Lease Terms states regarding conduct of operations -"Lessee shall conduct operations in a manner that minimizes adverse impacts ... to cultural, ... and other resources ... Prior to disturbing the surface of the leased lands ... Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects." Federal historic preservation laws relating to this issue include The Historic and Archaeological Data Preservation Act of 1974 (16 U.S.C. 469); The National Historic Preservation Act of 1966, (1976 amendments) (16 U.S.C. 470); National Environmental Policy Act of 1969, as amended; Recovery of Scientific, Prehistoric, Historic, and Archaeological Data: Methods, Standards, and Reporting Requirements (36 CFR 66); The Secretary of Interior's Standards for Historic Preservation Projects (36 CFR 68); [note: the NPS has several "Standards for Documentation, Guidelines for Historic Preservation Projects" documents, as published in the Federal Register]. Should the commentor wish to see these documents, they are available in the Pinedale BLM office.

**Comment 45:** See response to Comment 14, Letter 7 - Gene R. George & Associates, Inc.

**Comment 46:** BLM disagrees with the assertion that "other trail historians don't value this stretch of Trail". This is incorrect. Todd Thibodeau, SHPO compliance historian found that the segment of Lander Trail in the PAPA retains integrity of place, setting and historical association, thus it qualifies as a National Register quality historic property. The Oregon California Trails Association (OCTA) Wyoming representative also has visited the Lander Trail in the PAPA and he enjoined BLM to protect the trail. Indeed, every trail historian BLM knows of considers the Lander Trail in the PAPA as a near pristine trail segment.

**Comment 47:** See response to Comment 13, this letter. Given the side bars discussed in Comment 13, BLM welcomes industry's involvement in Native American consultation.

**Comment 48:** Stabilization at the centralized production facilities was discussed in the DEIS, based on information provided by and at the request of the operators, to allow full disclosure. BLM disagrees with the statement in this comment that the need to install equipment for the removal of liquids would be contrary to the purpose of the centralized production facility. Quite the contrary, if liquids can be removed from the gas anywhere but at the individual well pad, the RP Alternative objective of the centralized production facilities will have been achieved.

**Comment 49:** BLM acknowledges that there may be other opportunities to reduce VOC emissions besides the vapor recovery units tested by Ultra. Regardless, the intent of the mitigation opportunity remains unchanged – how reductions in VOCs is achieved is not as important as the fact that reductions occur.

**Comment 50:** The comment provides no support for the claim that the AUM calculations are subjective – they are not. Regardless, the potential loss of AUMs was not used to define well pad limits for either of the RP Alternatives. Assessment of AUM loss or gain is integral to the public disclosure process.

**Comment 51:** BLM disagrees. See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc.

**Comment 52:** See response to Letter 7, Comment 10 (Gene R. George & Associates, Inc.) and Letter 1, Comment 5 (EPA).



**Comment 53:** See response to Comment 61, Letter 7 – Gene R. George & Associates, Inc.

**Comment 54:** The BLM is unsure what technical reports are referenced by this comment. However, sage grouse biologist, Clait Braun (Avian Research Program Manager, Colorado Division of Wildlife), repeatedly has asserted (1987. Proceedings of the Western Association of Fish and Wildlife Agencies 67:134-144 and 1998. Proceedings of the Western Association of Fish and Wildlife Agencies 78:139-156) that sage grouse have been displaced from areas impacted by oil fields but repopulate the area once reclamation of disturbed areas is successful and oil/gas projects mature. He also noted that reestablishment of sage grouse do not appear at population levels seen prior to the impacts.

**Comment 55:** See response to Comments 35, this letter and Comment 61, Letter 7 – Gene R. George & Associates, Inc.

**Comment 56:** The point made by the comment is one objective for the RP Alternative and Wildlife Mitigation Opportunity 13.

**Comment 57:** Information provided in Table 4-45 of the DEIS and Table I.A-2 in the Wildlife Technical Report demonstrates that impacts can result from activities similar to those associated with project actions. Page 1 of the Wildlife Technical Report acknowledges that "...NEPA practitioners base impact evaluations on assumption, conjecture and inference derived from studies of similar actions but in diverse locations and on different but similar species." In the DEIS, all published studies used to make assumptions, conjecture, and inference about potential impacts have been provided in text and reference. Ultra Resources, Inc. has provided funding for research on wildlife inhabiting the PAPA, the results of which are likely to be used by future NEPA practitioners to make assumptions, conjecture, and inference about effects to wildlife due to natural gas developments proposed elsewhere.

**Comment 58:** See response to Comment 28, this letter. BLM concurs with the comment except for the part that states "... and when the operator can justify the additional cost of directional drilling under its own economic criteria." If the BLM does not concur with the operator's economic criteria, then the BLM will use its own economic criteria.

**Comment 59:** BLM based its original economic analysis on the best data available at that time. Future analyses within the PAPA will use a production schedule, or curve, based on a much higher number of wells and which will provide a more representative estimate for analysis of economic feasibility.

**Comment 60:** BLM based its original economic analysis on the best data available at that time. Future analyses within the PAPA will use cost information which will be based on a much higher number of wells and which will provide a more representative estimate for analysis of economic feasibility. BLM disagrees with the part of the comment that states that "...total drilling costs at rig release for a directional well without drilling problems would be approximately \$3.0 million." BLM believes that future drilling/completion costs should average \$2.5 million or less depending on the number of intervals that require stimulation.

**Comment 61:** BLM has never run an economic analysis assuming acreage acquisition costs, rentals, overhead or a one time 3-D seismic cost. These are costs to the operator, and not to any specific well. These costs should be averaged out over all wells on the lease, not just directional well economic feasibility analysis.

**Comment 62:** BLM will adopt the AEM planning process regardless of which alternative is selected in the ROD. The transportation and wildlife working groups do not replace the need for an effective AEM planning process – rather they will form an integral part of the overall planning process.

**Comment 63:** See response to Comments 7 and 44, Letter 7 – Gene R. George & Associates, Inc.

**Comment 64:** Additional detail was provided at the March 3, 2000 meeting. See also the Issue Paper handed out at that meeting entitled "Archaeological Unexpected Discoveries and Sensitive Soils, Jonah and Southern



Anticline", authored by David Vlcek, BLM Pinedale's Cultural Resources specialist.

**Comment 65:** Those developers who will adversely affect National Register eligible cultural resources would fund the mitigative treatments deemed necessary to offset the adverse effect posed by development. A project-wide Research Design/Treatment Plan could be funded jointly by those operators developing leaseholds in the PAPA.

**Comment 66:** "Buffers" around all sites or locales haven't been decided upon. What BLM has done is consult with tribal representatives and receive tribal input concerning some proposals. The consultation was directed at addressing issues surrounding impacts posed by implementation of the two large 3-D seismic projects of 1999 (Western Geophysical and Veritas). BLM is aware that a one-mile buffer may be deemed "excessive" by industry. It is NOT being applied at all sites or locales.

**Comment 67:** See response to Comment 66, this letter.

**Comment 68:** BLM concurs that the PA needs to balance the objectives of educating the public with the objective of minimizing impacts to wildlife.

**Comment 69:** The comment is correct. Some of the draft PA contains standardized language and this section is an example of standardized language. BLM is enthusiastic about the PA, and once details of the Research Design and Treatment Plan are worked out, we, too, anticipate little objection to our joint efforts.

**Comment 70:** See response to Comment 23, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 71:** See responses to Comments 66 and 67, this letter. Consultation among BLM and tribal representatives is an ongoing process, so additional stipulations or agreements concerning management of sensitive locales will surely result. BLM will make every reasonable effort to include affected industry in this process. The one-mile buffer is not a standard size protective area to BLM; it will not be applied to "all sites". BLM certainly can provide Questar with additional justification concerning tribal concerns and attitudes, perhaps by having Questar present during consultation. We note that Dee Findlay of Questar attended the August 3, 1999 Shoshone and Ute consultation on the Mesa; this was a very successful effort. This type of collaborative effort can and should continue. We also agree that the studies done in support of natural gas development have added tremendously to the cultural resource database. We, too, look forward to this continued opportunity.

**Comment 72:** Studies conducted in the 1970's on sage grouse nesting habitat (see C.E. Braun et al, 1977. Guidelines for maintenance of sage grouse habitats. Wildlife Society Bulletin 5(3):99-106) noted that 80 to 87 percent of all sage grouse nests were within 2 miles of a lek. Earlier, M.W. Call (1974. Habitat requirements and management recommendations for sage grouse. USDI-BLM Technical Note. Federal Center, Denver) stated that nest sites are usually within 2 miles of strutting grounds, basing that conclusion on research from Montana (Wallestad, R.O., and D. Pyrah. 1974. Movement and nesting of sage grouse hens in central Montana. Journal of Wildlife Management 38:630-633.).

**Comment 73:** To say that no information about population responses to impact is equivalent to the absence of significant effects to populations is a mistake. The presence of suitable habitat is key to populations of any wildlife species and mitigation of potential habitat losses is the primary approach recommended by the BLM Habitat Maintenance Guidelines and Wyoming Game and Fish Commission in their mitigation policy (see Table 4-44, page 4-120 of the DEIS).

**Comment 74:** Not all leks on the Mesa shown in Figure 3-22 (page 3-79 of the DEIS) and Figure 1.A-4 (page 6 of the Wildlife Technical Report) are active. Results of sage grouse research funded by Ultra Resources, Inc. have recently been made available (Lyon, A.G. 2000. The potential effects of natural gas development on sage grouse populations near Pinedale, Wyoming. MS Thesis, University of Wyoming). That research clearly shows that female sage grouse that attended leks near natural gas wells selected nest sites farther away than 2 miles from the lek while females that attended undisturbed leks selected nest sites within 2 miles of the lek. These



observations may explain the results shown in Table II.E-5 (page 66 of the Wildlife Technical Report). In addition, it is important to note that the 2 mile buffer around leks to protect nesting habitat between March 1 and June 30 is a standard stipulation and will be imposed regardless of which alternative is selected in the ROD. See also response to Comment 35, this letter.

**Comment 75:** See the Wyoming Game and Fish Commission Mitigation Policy issued April 28, 1998. The determinations cited are based on species (Federal and state listed, other Federal protection and designation, overall rarity in the state, management focus as trophy, game, furbearer, or nongame) and overall distribution of habitats or specific components, the function (arrangement of habitat features and capability of those features to sustain species, populations, and diversity of wildlife over time) and value (the relative importance of various habitat types and conditions in sustaining socially or ecologically significant wildlife populations) of those habitats during the life cycle of the target species. If a highly valued habitat (very important) suffers diminished function (e.g., to sustain individual survival over winter), then one would expect lower population growth whether by decreased productivity, by decreased survival, or both. Such population response can be measured (see Section 5.18 of the DEIS and Part II of the Wildlife Technical Report).

**Comment 76:** See response to Comment 57, this letter. No prior research focusing on oil and gas developments has been conducted in southwest Wyoming. Hence, references are made that document impacts to other species but which are likely to be similar to actions associated with resource developments in southwest Wyoming. Only recently has a study commenced, funded cooperatively by USFWS, WGFD, BLM and University of Wyoming, that may make references to other species in other situations unnecessary (F. Ingelfinger. 2000. Songbird response to natural gas development on the Mesa in Pinedale, Wyoming. Progress report. Wyoming Cooperative Wildlife Research Unit, University of Wyoming, Laramie).

**Comment 77:** The statements are very applicable. While drilling or recompleting wells during winter might be prohibited on Federal lands, maintenance vehicles and personnel would be present once wells are operational. No restrictions are imposed on drilling during crucial periods on private and state lands. The potential consequence for increased energy expense by mule deer encountering well-field traffic was discussed on page 4-146 of the DEIS and page 59 of the Wildlife Technical Report and increased winter mortality (concomitant with diminished habitat function) would be anticipated. Alternatively, mule deer could vacate an area subject to increased human presence. The third possibility, that mule deer habituate to disturbances and are neither displaced nor expend additional energy, is a likely behavior for some individual deer but, given the migratory habits of animals wintering on the Mesa, is not an expected response by the majority (see discussion on page 4-146 of the DEIS).

**Comment 78:** Those uses noted are also expected secondary impacts associated with any local increase in human population, whether due to natural gas development or something else. There have been no studies designed to partition effects of Federal land use, primary effects of gas developments, and secondary effects of gas developments. This is a cumulative effect.

**Comment 79:** Increased vehicle-related mortality of wildlife is expected with increased vehicle traffic (see Table 4-45, page 4-121 of the DEIS). If increased traffic is due to natural gas development, then increased wildlife mortality would be expected because of that presence.

**Comment 80:** This statement is not correct. BLM can determine seasons for livestock grazing and recreational use and close areas to both uses if necessary. While impacts may occur, such dispersed activities are not expected to have similar results as those discussed in the DEIS. The potential for such cumulative effects was discussed in Chapter 5. One of the reasons the RP Alternative suggests closing portions of the PAPA to unrestricted ORV use is to offset impacts to wildlife that might occur from oil and gas development.

**Comment 81:** As is discussed in the response to Comment 4, Letter 7 (Gene R. George & Associates, Inc.), "documented, factual support" of the sage grouse model is now available.

**Comment 82:** Questar neglects to quote the rest of the passage which states "However, mule deer density was



less within a 0.6-mile radius from well drilling activity than beyond 0.6 mile. And, mule deer bedding and feeding sites were significantly farther from active oil wells than random sites within oil fields although there were no similar significant differences found between distances from roads to bedding and feeding sites compared to random sites in oil fields (Easterly et al., 1991).” That study indicated mule deer had some preference to feed and bed farther away from active oil wells than expected by chance or random distribution.

**Comment 83:** Water sources used by sage grouse include stock ponds. See Figure 3-17, page 3-60 of the DEIS.

**Comment 84:** See response to Comment 54, this letter and Letter 7, Comment 4 (Gene R. George & Associates, Inc.).

**Comment 85:** WGFD and BLM do not survey every lek, every year. Consequently, the most recent records documenting a lek’s activity within the past 5 years are the best available data.

**Comment 86:** Presumably, the comment addresses the statement made about cumulative impacts to pronghorn on page 5-30 of the DEIS. Although maximum fawn survival rates showed no differences from before to after implementation of major projects, a thorough reading of that paragraph will reveal diminished pronghorn production rates in all herd units subjected to increased oil and gas developments since the early 1990s. The interpretation was subsequently made that “the data do not conclusively identify decreased fawn production as a result of oil and gas developments within the affected herd units: there are other factors influencing pronghorn productivity as well”. The purpose of cumulative impact analysis is to explore how project effects have contributed or will contribute incrementally to the overall effect of past, present, and reasonably foreseeable projects or actions that affect the resource, whether conducted by private, state, or Federal entities. Currently, the observed diminished fawn production in pronghorn herd units affected by oil and gas developments in southwest Wyoming is believed to be a product of several causes. Research is currently underway at the Wyoming Cooperative Wildlife Research Unit to explore those potential causes.

**Comment 87:** See response to Comment 54, this letter.

**Comment 88:** BLM disagrees. The DEIS provides ample documentation of the environmental threats development using the SS Alternative would pose to many of the resources in the PAPA. These are discussed in the following DEIS sections: transportation - Section 4.5; land use and recreation - Section 4.6; recreation - Section 4.7; visual resources - Section 4.8; cultural and historic resources - Section 4.9; air quality and noise - Section 4.10; geology and geologic hazards - Section 4.11; paleontological resources - Section 4.12; water resources - Section 4.13; soils - Section 4.14; vegetation - Section 4.15; grazing - Section 4.16; wetlands and riparian resources - Section 4.17; threatened and endangered species - Section 4.18; and wildlife and aquatic resources - Section 4.19.

Regardless of the attempts by Questar to dismiss the significance of these impacts predicted in the DEIS, Questar has failed to provide any information (other than opinion) which suggests that the conclusions reached in the DEIS are incorrect.

**Comment 89:** This statement is incorrect. Except for the breaks, under no circumstances do the RP Alternatives recommend any blanket NSO provisions anywhere in the PAPA. The comment only contains a vague assertion that multiple RP Alternatives would have the effect of imposing No Surface Occupancy in large portions of the PAPA. Such a statement is not true. Also, see response to Comment 33, Letter 7 – Gene R. George & Associates, Inc.

### **Letter 13 - McMurry Oil Company**

**Comment 1:** The issue related to the timing of the EIS has been long debated with the operators. BLM’s rationale for preparing the NEPA document at this time and the regulatory requirement limiting activity while the EIS is being prepared is discussed in detail on page 1-2, Column 1, of the DEIS. Ultimately, BLM is solely



responsible for determining when and how NEPA compliance will occur. Although BLM solicits the opinions of many parties before it decides on a specific approach, the final decision rests solely with the agency. EPA, in its role as the final arbitrator of the adequacy of the EIS, did not raise any concerns about the EIS being prepared prematurely (see Letter 1 – EPA).

BLM takes exception with the conclusion that the agencies decision to apply NEPA early somehow is “process over purpose” as this comment suggests. The DEIS clearly demonstrates that the potential for significant impacts to a number of natural resources exists in the PAPA if exploration or development is extensive and widespread. As such, BLM is obligated to consider ways to minimize these impacts at the earliest time, including exploratory drilling.

**Comment 2:** The conclusion that leasing analysis conducted for the PAPA and the Pinedale RMP satisfy BLM's obligation to comply with 40 CFR § 1501.2 (early application of NEPA) is not correct and ignores the site-specific nature of impacts uniquely associated with development in the PAPA. The Pinedale RMP EIS addresses the general allocation of uses throughout the planning area (e.g., where cattle grazing can/cannot occur, where oil and gas leasing can/cannot occur, etc). It does not satisfy the requirements of NEPA for site-specific exploration and/or development. Further site-specific environmental documentation of a proposed action is required, and if there is the potential for significant impact, an EIS is necessary. As is pointed out in the DEIS, many of the leases in the PAPA were issued in the 1950s and the decisions to lease contained little, if any, consideration of environmental affects. There has been little or no consideration of cumulative impacts or the impacts associated with large-scale development in any of the leasing analysis conducted for the PAPA to date. Also, the Pinedale RMP is over 10 years old and segments of the affected environment and public expectations in northern Sublette County have changed dramatically since the RMP was prepared. The Pinedale RMP did not consider the potential for 700 well pads to be developed in the PAPA nor did it evaluate cumulative impacts with the Jonah II development. Factually, it is erroneous to rely on leasing analysis or the RMP to satisfy the requirements of 40 CFR § 1501.2.

The argument made by McMurry in this comment is truly “process over purpose” – the same criticism included in Comment 1 of McMurry's letter. The purpose of the early application of the NEPA process is to identify mitigation opportunities that can be utilized to control impacts from the onset of exploration and development. Without early consideration, opportunities to reduce impacts may be foregone. The need for the Transportation Committee, a product of the NEPA process, is ample evidence that it is not too early to start the process of defining infrastructure well in advance of actual delineation and quantification of the reservoir. To conclude that satisfactory early application of the NEPA process can rely upon leasing analysis and a 10+ year old RMP is truly process over purpose.

**Comment 3:** MOC must agree that ultimately BLM is responsible for determining what alternatives are “reasonable”. BLM has taken into consideration information provided by all the operators as well as independent analysis conducted by the BLM's Reservoir Management Group. MOC is well aware that there is no consensus among the operators regarding how development of the PAPA can proceed (i.e., are central production facilities feasible or not, etc.). Reviewing operator comment letters submitted in response to the DEIS is a clear indication that consensus is lacking and that there has been a dramatic shift in the opinions of some operators, including McMurry, as to the viability of the alternatives. BLM disagrees that adequate information is currently available to rule out any of the alternatives addressed in the DEIS. See response to Comment 33, Letter 7 (Gene R. George & Associates, Inc.).

The comment states “it is irrefutable” that the proponents of the action have the best data to assist the BLM in determining the technical and economic feasibility...”. This is not entirely correct. A proponent's information/data is limited to what it has experienced. BLM is involved with a myriad of companies and is familiar with what has and has not worked. Also, some companies make things work because they are always looking for new and better ways of getting the job done while still protecting the environment. Others are satisfied with the status quo and dislike anything or any idea that interferes with “the bottom line.”

**Comment 4:** See also response to Comment 3, this letter. This comment suggests that BLM should only have



considered alternatives that the operators concluded are reasonable and that BLM should not have evaluated new technologies, development techniques and other mitigating opportunities that have the potential to significantly reduce impacts to natural resources on leased lands simply because the operators concluded that they are technically and economically not feasible (at least on the date the DEIS was printed). BLM submits that had McMurry taken this same narrow view of development in the Jonah Field, the field would not today be the state's largest producer of sweet gas. Apparently the comment would also have the BLM ignore the fact that some of these techniques and new technologies are successfully used elsewhere, including in southwestern Wyoming, and that they were initially championed by some of the operators, and that the public had been heavily "sold" that these new technologies and development techniques would significantly reduce impacts from the project. In fact, this comment concludes that BLM should not even have disclosed these new technologies and development techniques so that the EIS could have been "more expeditiously completed" and to "have fewer comments to respond to". Further, this logic suggests that BLM should not have proceeded with analysis of impact reduction opportunities but should have simply agreed that the cheapest, most risk-free way to develop the leases (allowing 16 vertical well pads/section) is really the only technical and economically feasible alternative for development in the PAPA. At the same time, BLM should have made its apologies to the public and other users of lands in the PAPA by claiming that there are not other reasonable (as defined by the operators) measures that could be used to reduce the impacts. Needless to say, BLM disagrees.

BLM considered comments by the operators in selection of the alternatives addressed in the DEIS. In fact, Ultra widely declared to the Pinedale community and environmental groups that development could proceed in an environmentally acceptable manner in the PAPA because of pad drilling. At one time, Ultra even discussed the possibility of 1 or 2 well pads per section with cooperating agencies for this EIS and provided environmental groups with economic information that supported the economic feasibility of using of pad drilling. Neither McMurry or the other operators publicly refuted these assumptions. Now, as can be seen after reviewing Letter 11, Ultra emphatically states that pad drilling won't work. Likewise, there is not agreement among the operators as to whether centralized production facilities can be used in the PAPA. Questar and Anschutz state centralized production may or may not work. However, as McMurry will recall, this alternative was evaluated at the insistence of all the operators including McMurry. Amoco has demonstrated the process successfully in the Continental Divide/Wamsutter area. Ultra still believes centralized production has tremendous application in the PAPA. In fact, McMurry provided the BLM the information contained on page 2-52 (Column 1) of the DEIS which describes how centralized production would eliminate the need to visit each well pad daily in the winter. Apparently, McMurry now claims centralized production would not eliminate the need to visit well pads as stated on page 2-52 of the DEIS (see comments later in this letter)! McMurry must agree that there is no consensus among the operators as to how development in the PAPA will or should proceed. If BLM waited for the operators to reach consensus regarding alternatives (including who will gather gas and where compression will be situated), the DEIS would never have been released.

In the spirit of the CEQ regulations, BLM believes it has identified all relevant, reasonable mitigation measures that could improve the project, even if some of them are outside the jurisdiction of the lead agency. The EPA, in their role as final arbitrator of the adequacy of all NEPA documents, apparently agrees (see Letter 1, page 2, 1<sup>st</sup> paragraph). It may be ultimately proven that portions of the RP Alternatives are not economic, but it is too early to exclude them from the NEPA analysis or conclude that they are not now and never will be reasonable.

**Comment 5:** BLM admits the DEIS is long. However, it adequately addresses the myriad of resources potentially affected by the project. The EPA, in their role as final (and sole) arbitrator of the adequacy of all NEPA documents, did not raise the concern that the document was too long (see Letter 1 – EPA).

**Comment 6:** There is not a page limit requirement in CEQ regulations - the limits addressed in this comment are simply guidelines. It may not be possible to keep the DEIS below the page limit specified in this comment. Publication of comment letters and BLM's response alone (assuming they are in a readable format) will likely exceed the limits suggested by this comment. McMurry alone submitted 44 pages of comments. See also response to Comment 5, above.

**Comment 7:** The statement that speeding is already a problem is not pre-decisional as the comment suggests



– it is a statement of fact. This statement was included in the DEIS based on comments received from the public during scoping and during public workshops, from the county road and bridge department, and from BLM personnel observations in the field. Please also see Letter 29 (page 2) from the Sommers Ranch Partnership which describes problems with speeding in the PAPA.

**Comment 8:** The statement that well pads would not be located within 0.25 miles of occupied structures is not pre-decisional. Rather, it is informing the public of current lease stipulations (see Table 4-2 – occupied dwellings – in the DEIS) and Wyoming BLM’s Mitigation Guidelines and Standard Practices for Surface-Disturbing and Disruptive Activities which will be applied to development in the PAPA regardless of which alternative is selected in the ROD. As such, the statement is a baseline standard stipulation. The statement is important to the public’s understanding of the protections offered by the SS Alternative. If BLM had stated that it would change the buffer around occupied structures, such a change would be pre-decisional and the comment would be warranted. However, BLM has not announced in the DEIS that it would do so.

**Comment 9:** The statement that wells need to be at least 800 feet from residences to avoid significant noise impacts is an impact assessment conclusion not a decision as the comment suggests.

**Comment 10:** The BLM decision to withhold leasing along the Wind River Front and the Gros Ventre foothills was made based on the age of the Pinedale RMP and recognizable conflicts with existing recreation uses. The decision has no effect on development in the PAPA and was made irrespective of findings in the DEIS. The information was disclosed in the DEIS so that adequate assessment of cumulative impacts could occur.

**Comment 11:** The statement in the DEIS is taken out of context. This section of the DEIS describes only how the estimated number of potential well pad locations within each SRMZ was calculated for purposes of Tables 2-5 and 2-6. Again the statement is not pre-decisional, rather it describes a critical step in how the impact assessment was conducted.

**Comment 12:** The statement referenced in the DEIS is simply a recognition that the BLM disagrees with the findings of the National Park Service’s ranking of the Lander Trail in the PAPA. It is not contrary to the NEPA process for the BLM to point out that it disagrees with conclusions reached by other agencies, particularly when BLM is ultimately responsible for managing the trail on Federal lands. The comment is incorrect to assert that the statement is in anyway “pre-decisional”.

**Comment 13:** During preparation of the DEIS the BLM recognized that VRM classifications in the PAPA were out-of-date. This fact was also pointed out by the public during scoping and during the public workshops. The DEIS recognizes that the VRM classification needs to be updated. This is similar to the DEIS recognizing that changes will be occurring in storm water regulations in the year 2003 and that certain fences in the Pinedale Field Office Area are not in compliance with antelope standards. These types of statements are not pre-decisional but rather are important statements regarding the current conditions in the area or recognition that existing regulatory requirements are going to be updated. The statement is a conclusion based on a factual assessment, it is not pre-decisional.

**Comment 14:** This statement regarding the Wind River Front SRMA is describing a mitigation opportunity. The BLM made no decisions in the DEIS to apply the mitigation opportunity described in this comment. The mitigation opportunity was developed to comply with CEQ regulations that require BLM to identify all reasonable and relevant mitigation to improve the project (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 15:** The statement regarding the need to update the VRM II classification in the PAPA includes mitigation opportunities. No decisions regarding the implementation of any of the mitigation opportunities included in this comment have been made. The mitigation opportunity was developed to comply with CEQ regulations that require BLM to identify all reasonable and relevant mitigation to improve the project (see Letter 1, page 2, paragraph 1 – EPA). The final statement in this comment that “implementation of the project would substantially alter the existing landscape regardless of VRM classification” is an impact conclusion, not a decision.



**Comment 16:** Again, the portions of this statement regarding the Lander Trail that the comment considers pre-decisional are only potential mitigation opportunities. If the BLM stated that any of these mitigation opportunities would be adopted, this comment would have been warranted. However, decisions to adopt or reject these opportunities are not contained in the DEIS. They will be addressed in the ROD. The mitigation opportunities were developed to comply with CEQ regulations that require BLM to identify all reasonable and relevant mitigation to improve the project (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 17:** Please see responses to Comments 7 through 17, this letter. As is stated in the response to these comments, none of the statements are pre-decisional as this comment suggests. The mitigation opportunities described in most of the comments were developed to comply with CEQ regulations that require BLM to identify all reasonable and relevant mitigation to improve the project (see Letter 1, page 2, paragraph 1 – EPA). BLM cannot respond to other statements in the DEIS which the comment considers pre-decisional without specific reference to the statement. In addition, BLM is unaware of a statement in the DEIS that concludes that “oil and gas development is an unacceptable land use” as this comment claims.

**Comment 18:** BLM appreciates identification of typographical errors in the DEIS. The BLM apologizes for any inconvenience the typos may have caused. However, because they do not result in a change in the meaning or context of any of the sentences identified, changes have not been incorporated in the Errata.

**Comment 19:** These pipeline corridors have been analyzed and the results are incorporated in appropriate locations in the Errata.

**Comment 20:** See response to Comment 18, Letter 12 – Questar.

**Comment 21:** The Biological Assessment (BA) was incorporated in the DEIS. The BLM is unsure of the meaning of the statement in this comment that “BLM has failed to adequately address the likely impacts to T&E species and their habitats within the project area”. The analysis of potential impacts to T&E species in the DEIS is extensive (see Section 4.18 of the DEIS). The inclusion of the BA in the DEIS is not atypical as this comment claims, it is an accepted procedure for NEPA compliance with consultation requirements of the Endangered Species Act. See also response to Comment 2, Letter 4 - USFWS.

**Comment 22:** McMurry utilizes the incorrect conclusion reached in this comment to discount the need for mitigation of impacts to wildlife in later comments. BLM disagrees that the conclusion that significant direct impacts to wildlife reached in the DEIS is “erroneous”. No error occurred. Cooperating agencies, including the WGFD, concur that the conclusions reached in the DEIS are reasonable. The comment does not provide any specific information to substantiate the claim.

The significance criteria are neither “subjective or artificially low” as this comment claims. Rather, the impact significance criteria for wildlife (Section 4.19.2, page 4-144 of the DEIS) are based specifically on the Wyoming Game and Fish Commission’s Mitigation Policy (1998). The significance criteria were developed in consultation with the WGFD and USFWS through a collaborative process during a day-long workshop in Cheyenne. The policy’s objective is to provide a consistent approach to formulate effective mitigation when adverse impacts to wildlife occur. The basis for judging whether or not adverse impacts will occur vary by species and their habitats as summarized in Table 4-44 (page 4-120 of the DEIS) so that significant adverse effects to “vital” species/habitats would result from a loss of habitat function.

The comment does not provide evidence of analysis to support the conclusion that ANY of the actions of man in the project area would result in significant impacts using the significance criteria developed for the DEIS. Nor does the DEIS acknowledge this conclusion, as the comment suggests, through the discussion of secondary impacts. McMurry has inserted the phrase “non-project related” which inappropriately changes the entire context of the statement found on page 4-144 of the DEIS.

**Comment 23:** The conclusion in this comment that BLM has failed to demonstrate significant impacts to wildlife is incorrect. The DEIS, in Section 4.19, and the Wildlife Technical Report methodically “step through” the process



used to assess impacts to wildlife. The WGFD and USFWS concur with the wildlife impact assessment and impact conclusions reached in the DEIS. The comment does not suggest that the analysis is in anyway flawed – it simply takes exception with the significance criteria used in the analysis (see response to Comment 22, this letter). The opinion expressed in the comment is carried forward in this letter to justify the conclusion that mitigation of impacts to wildlife is not necessary.

**Comment 24:** See response to Letter 7, Comment 4 (Gene R. George & Associates, Inc.). Throughout this letter, McMurry consistently misrepresents how the models were used in the DEIS. The wildlife habitat models simply demonstrate where, geographically, impacts to habitat suitability could occur and where mitigation efforts could be most effective in maintaining suitable habitat.

**Comment 25:** The reference in the DEIS to which this comment is directed is not specific and appears to confuse several analyses. BLM assumes that the initial statement refers to analyses presented in Chapter 5 of the DEIS and disagrees that the analysis of the impact to sage grouse lek attendance is either “incomplete or misleading” as the comment suggests. While some of the variables that McMurry lists may be factors that have affected sage grouse lek attendance, none are measurable or recorded on existing spatial databases. Therefore, distance between leks and nearest oil or gas well was the only variable employed because it could be measured. Even so, conclusions based on the analysis apparently referred to by this comment do not assign cause-and-effect relationship between distance between lek and well site as sole impact to sage grouse lek attendance. The comment correctly acknowledges that additional research is necessary before such impact is known with certainty. BLM has funded research that, in part, will evaluate effects of noise and well drilling activities at varying distances to breeding sage grouse.

**Comment 26:** BLM disagrees with the conclusion reached by this comment. Of course the model relies upon assumptions, conjecture and inference - to varying levels - so do all models. If all variables in the models were known, there would be no need for the models. There is no factual support for the assertion in this comment that the models are not making significant contributions to the understanding of impacts to wildlife due to natural gas development. Quite to the contrary, the models are proving to be a valid tool and there is genuine excitement among wildlife biologists that models such as those used in this DEIS will allow a better understanding of the complex relationships between wildlife and their habitats.

In response to the second part of this comment, some information is just becoming available that can be used to validate the models. Sage grouse nest-site locations and associated environmental/habitat data have been collected at 3 locations in Wyoming including the PAPA (Lyon, A.G. 2000. The potential effects of natural gas development on sage grouse populations near Pinedale, Wyoming. MS Thesis, University of Wyoming, Laramie), in the Bates Hole area of Natrona County (Holloran, M.J. 1999. Sage grouse (*Centrocercus urophasianus*) seasonal habitat use near Casper, Wyoming. MS Thesis. University of Wyoming, Laramie), and in the vicinity of Farson in Sublette, Sweetwater and Fremont counties (Heath, B.J., et al, 1997. Sage grouse productivity, survival, and seasonal habitat use near Farson, Wyoming. WGFD Completion Report, Cheyenne). The values of habitat parameters measured at sage grouse nest sites in these 3 studies support predictions made by the sage grouse nesting habitat model described in the DEIS and Wildlife Technical Report. There were 59 nest sites evaluated in the Farson study. All nests were within habitat rated by the model as suitable for sage grouse nesting with greater than 60 percent probability. In the Bates Hole study, 93 percent of the 74 sage grouse nests examined were within habitat the model evaluated as suitable with 75 percent probability and higher. In the PAPA, 46 sage grouse nest sites were evaluated. Of those, 37 nests were in areas that the model predicted to be suitable habitat with probabilities of 81 to 100 percent, 7 nests were in habitats predicted to be suitable with probabilities between 51 and 80 percent, and 2 nests were in areas the model predicted were suitable with less than 50 percent probability (more marginal than suitable habitat). Further evaluation of that data indicates that sage grouse hens nesting in the PAPA selected highly suitable habitats (predicted by the model) more often than one would expect due to chance or random nest-site selection [chi-square test for homogeneity on frequencies of observed sage grouse nesting in suitable habitat (predicted by the model) compared to expected frequencies in that habitat based on availability (within the PAPA) showed that there would be less than 1 chance in 1,000 that sage grouse nests were distributed in the PAPA randomly ( $\chi^2 = 18.73$ , 2 df,  $p < 0.001$ )].



**Comment 27:** Since the page numbers in the Wildlife Technical Report do not match the materials being addressed, the analyses that these comments address are presumably about cumulative impacts to pronghorn in southwest Wyoming. BLM is unaware of the data set described as years of pre- and post-oil and gas development data to which McMurtry refers in this comment. McMurtry's implication that previous studies have explored relationships between ungulate fawn production and oil and gas development is erroneous. No studies have been designed to analyze big game population responses during pre- and post-development of oil and gas projects. The best available data to this end are annual big game herd composition survey data collected by WGFD biologists. These data have been analyzed in Chapter 5 of the DEIS and in the Wildlife Technical Report. Inspection of Table II.E-1 on page 62 of the Wildlife Technical Report reveals that pronghorn fawn production has been substantially lower since major oil and gas developments occurred in those herd units compared to fawn production prior to developments. The discussion on page 61 of the Wildlife Technical Report compares pronghorn fawn productivity after severe and not so severe winters. The not-so-severe winters occurred during periods of oil and gas development in those herd units but fawn production following those winters was lower than fawn production following the severe winter prior to initiation of oil and gas projects in the herd units. The Wildlife Technical Report and DEIS acknowledge that, in addition to oil and gas developments, there are other factors that could contribute to the observed phenomena. Decreased habitat function in these herd units is likely a measure of cumulative impact which is the purpose of cumulative impact analysis.

The analysis in Chapter 5 of the DEIS is concerned with cumulative impact. The purpose of cumulative impact analysis is to explore how project effects have contributed or will contribute incrementally to the overall effect of past, present, and reasonably foreseeable future projects or actions that affect the resource, whether due to private, state, or Federal entities. Currently, the observed diminished fawn production in pronghorn herd units affected by oil and gas developments in southwest Wyoming is believed to be a product of several causes. Research is currently underway at the Wyoming Cooperative Wildlife Research Unit to explore those potential causes. Also, see response to Comment 86, Letter 12 - Questar Market Resources Group.

**Comment 28:** The wildlife habitat models are a first step in relating wildlife habitat attributes to environmental impacts. The second step is underway. Research specifically designed to validate the mule deer winter habitat model is in progress. Other research results have been made available which validate the sage grouse nesting habitat model (see response to Comment 26, this letter).

Regardless, the discussion here does not in anyway negate the conclusion in the DEIS that extensive development will result in significant impacts to wildlife. It would be completely inappropriate, as this comment suggests, to forego appropriate mitigation opportunities in the hope that the models might be further refined at a later date. The fact remains that undue and unnecessary impacts to wildlife will occur without implementation of the RP Alternatives. This is a conclusion reached independently and unilaterally by the cooperating agencies.

**Comment 29:** The statement quoted in the Wildlife Technical Report does not acknowledge that any model is incomplete. Any model of reality is subject to revision as new information or analytical techniques become available. This fact does not diminish the value of the model as a tool nor negate the conclusion that significant impacts to wildlife will occur with extensive development.

**Comment 30:** This comment is not correct - MOC has misread or misunderstood the Expanded Moxa Arch Area FEIS and the WGFD's comments in the FEIS (1996, see page 4-26). Use of habitat modeling was first introduced in the Enron Burly Area DEIS (1994) at the request of WGFD during scoping (see page 3-23, Enron Burly Area DEIS, 1994). Wildlife habitat models, identical in form to those presented here, were employed to evaluate cumulative impacts in the Fontenelle Natural Gas Infill Drilling Projects DEIS (1995) and the supporting Wildlife Technical Report. Modeling was not used in the Expanded Moxa Arch Area DEIS:

WGFD, in their comments on the Expanded Moxa Arch Area Natural Gas Development Project FEIS (1996, page 4-26) stated the following (see Comment Letter 20, Comment 20-1 in its entirety): "RE: Analysis Methods. Effects of human activity on pronghorn populations are not well understood. Although the EIS citation of Reeve (1989) (sic) states, "Antelope will acclimate to increased traffic volumes and machinery as long as machinery moves in a predictable manner," there is no data suggesting field development will meet these criteria or that the



large amount of disturbances will not be detrimental. In fact, Reeve (1995) also suggests cumulative impacts from oil and gas may significantly impact habitat use by antelope. We believe the analytical methods used in the Fontenelle EIS are more meaningful and should be applied to Moxa Arch. The current analysis is largely based on opinions, which fail to support its conclusions.”

Contrary to the assertion made by McMurry’s comment, the WGFD was critical of the Moxa Arch EIS for not using the modeling approach used in the Fontenelle EIS.

**Comment 31:** The conclusion reached by McMurry is incorrect. The Wyoming Game and Fish Commission Mitigation Policy states (page 1): “**The need for mitigation will be based upon the immediate, physical alteration of habitats or direct threat to wildlife.** Development activities should not necessarily be excluded from consideration because they affect an ‘insignificant’ portion of the state’s surface or because a wildlife population is at its current management objective.” Under this policy, it is irrelevant that current knowledge may be insufficient to establish cause and effect relationship with regard to habitat function and, presumably, populations. The Wyoming Game and Fish Commission’s Mitigation Policy correctly and directly focuses on mitigating impacts to wildlife habitat. To assume that the viability of a wildlife population is not related to habitat, as this comment seems to argue, is foolish.

**Comment 32:** **The statement that posterior probabilities are the basis of the BLM’s determination to require mitigation is absolutely incorrect.** Appendix A of the Wildlife Technical Report provides a brief outline reviewing probability with application to Bayes’ Theorem and habitat models. A Bayesian approach is ideally suited to incorporation of new information (conditional probabilities) while retaining existing knowledge or beliefs (prior probabilities). Even though several information sources have validated the predictability of the sage grouse nesting habitat model (see response to Comment 4, Letter 7 – Gene R. George & Associates, Inc.), new data collected in the PAPA and funded by Ultra Resources, Inc. is being used to generate new conditional probabilities that will produce new posterior probabilities that any given area is suitable nesting habitat.

The prior probabilities utilized in the wildlife habitat models are derived from existing wildlife management objectives for spatially explicit habitat associated with each species – they are not “unsubstantiated as the comment suggests”. BLM’s management of the 2 mile radius surrounding a lek for protection of nesting sage grouse implies their belief that areas within the 2 mile boundary are more likely to be used for nesting than areas outside the boundary. WGFD’s spatial delineation of big game wintering habitats implies that those areas will more likely be used by animals during winter than other, non-wintering habitats. That the sage grouse nesting habitat model is predictive has been demonstrated (see response to Comment 26, this letter). Too, wildlife biologists and spatial data analysts have reviewed the models and modeling process (see response to Comment 4, Letter 7 – Gene R. George & Associates, Inc.).

**It is important to point out that the continual assertion by McMurry that the models were used to justify the RP Alternatives is not true.**

**Comment 33:** Parameters that were not independently distributed have been removed from earlier versions of the habitat models. McMurry’s example of a randomly selected individual being a female civil engineer is a good example of a joint probability (being female and a civil engineer) which, as presented, is the product of a two unconditional probability (being female, being a civil engineer). With additional information that would be contained in a conditional probability (being a civil engineer given the individual is female), the joint probability that an individual randomly selected from a defined population is a female civil engineer would be more reliable. As pointed out in Appendix A of the Wildlife Technical Report, joint probabilities are the intersecting probabilities of several events occurring simultaneously.

**Comment 34:** The comment appears to be confusing conditional probabilities with the concept of synergistic effects of multiple impact sources on wildlife. In the context of cumulative impact evaluation, synergism is defined as a “circumstance where the total effect of an interaction between two or more agents is greater than the sum of effects of the individual agents.” (Cumulative Impacts Task Force. 1997. Wildlife Chapter: Planning aids for cumulative impacts assessment-oil and gas development/wildlife. BLM State Office, Cheyenne). Synergistic



effects due to multiple impact sources (roads, livestock grazing, human population growth and demand for outdoor recreation) may, in fact occur but currently available analytic techniques, including the wildlife habitat models, are not structured to detect synergism (see discussions on page 35 of the Wildlife Technical Report).

**Comment 35:** As is demonstrated in the response to the following comments, attempts by McMurry to label the models as arbitrary and capricious are not factually supported. In addition, the stated objections to wildlife habitat models as the basis for mitigation requirements are misplaced. Mitigation of impacts is a key component of NEPA (via CEQ requirements), BLM policy (via the Federal Land Policy and Management Act), and Wyoming Game and Fish Commission's Mitigation Policy. The wildlife habitat models simply demonstrate where, geographically, impacts to habitat suitability could occur and where mitigation efforts could be most effective in maintaining suitable habitat.

**Comment 36:** In Comment 35, this letter, even McMurry agreed with the DEIS conclusion that project land use changes will decrease functional habitat. The DEIS predicts that if development is extensive, decreased habitat function will be significant. The determination of significance is based on criteria established by the Wyoming Game and Fish Commission's Mitigation Guidelines. McMurry provides no evidence that contradicts these conclusions - rather it asks a number of germane questions about the application of models to predict where these impacts could occur. As is stated in the response to Comment 35, above, the habitat models were not the basis of mitigation requirements.

The conclusion reached by this comment that 16 well pads/section (SS Alternative) could be developed in crucial winter range for mule deer without adversely affecting the function of that habitat is not accepted by the BLM or the WGFD.

**Comment 37:** The letter referenced in this letter was reviewed during development of the DEIS. It was considered along with other comments received from the operators. It is not responded to in these comments. The issue of takings is addressed in response to Comment 33, Letter 7 (Gene R. George & Associates, Inc.).

**Comment 38:** While the information quoted in this statement is correct, the context of the statement misrepresents the factual situation in the two fields. The IBLA case addressed a proposal for only 10 wells on 160-acre spacing where no significant impacts were predicted. Pad drilling would not have reduced significant impacts. Whereas the Pinedale DEIS analysis of alternatives for the PAPA addresses field development using 40-acre spacing with 700 producing well pads into the future. BLM agrees that pad drilling is not expected to be used during exploration in the PAPA. However, during field development pad drilling could play a role in reducing impacts – a situation not addressed in the IBLA BTA Bravo case

**Comment 39:** It is assumed that the comment refers to Appendix D, not Appendix B. The comment does not define the significance of "huge". Contrary to the statement in the comment, the DEIS does recognize that adoption of the RP Alternatives could result in reduced recovery (see Section 4.1.4 of the DEIS). Please refer to response to Comment 33, Letter 7 – Gene R. George & Associates, Inc. Use of the term "waste" is inappropriate in this comment. Waste is defined at 43 CFR 3160.0-5(w).

**Comment 40:** It is assumed that the comment refers to Appendix D, not Appendix B. Please see response to Comment 39, this letter, Comment 4, Letter 8 – Anschutz Wyoming Corporation and Comment 33, Letter 7 – Gene R. George & Associates, Inc.

**Comment 41:** See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc. It would be impossible to accurately predict the lost revenues discussed in this comment. Because so little is known about the ability of the PAPA to produce economically, the DEIS evaluated the positive revenue-based impacts from just a single well. The DEIS intentionally did not project the revenues from that single well to field development because the results would have been incredibly inaccurate. The same conclusion is reached when trying to estimate lost reserves associated with the RP Alternatives. There are too many wide-ranging and unpredictable unknowns to make such an estimate meaningful. BLM believes the disclosure on page 4-7 of the DEIS, which states that the positive socioeconomic impacts projected for the single well would not be realized, is adequate.



**Comment 42:** BLM concurs with the comment - i.e., geologic risk may not preclude directional drilling, but it does complicate it.

**Comment 43:** BLM did factor into the economic analysis the increased costs of directional drilling but not any abnormal risk costs. BLM concurs that this is an important factor affecting overall cost of directional drilling. However, this is unpredictable but with experience this should be within the range of what has been considered.

**Comment 44:** This comment ignores the fact that the economics of 2 wells recently drilled in the southern part of the PAPA are vastly greater than the poor performance of wells to date in the northern part of the PAPA. It has been estimated that the Amoco 15-4 Antelope well has a reserve base of over 10 BCF of gas. Between June 20 and December 31, 1999 that well produced an astonishing 2 BCF of gas. Early indications suggest that the Yates Federal Highway 4 may be as good. Certainly, McMurry cannot conclude that these wells would not be economic to directionally drill. To make wide sweeping conclusions that directional drilling is not a reasonable alternative anywhere in the PAPA, as this comment attempts to do, is unacceptable and factually incorrect. Much remains to be learned about the ability of the PAPA to economically produce.

**Comment 45:** BLM disagrees that one of these requirements takes precedence over the other. BLM's "highest priority and first directive" is not to maximize recovery and avoid waste, as this comment concludes. If this was the case, there would be no exceptions for protecting human health and safety or the environment, which is simply not the case. In addition, the leases may not provide for the removal of every molecule of gas under the leased lands, as this comment would imply. And, there is no provision which requires that mineral recovery be completed in a manner that guarantees the highest rate of return to the operator, regardless of the environmental consequences.

BLM concurs that one objective under the regulations is to provide for maximum ultimate economic recovery while protecting other natural resources (see 43 CFR 3162.1(a)). Also, FLPMA regarding the management of use, occupancy and development of the public lands (Section 302(b)), requires the "Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." BLM must balance the need for maximum economic recovery with the need to protect natural resources and environmental quality of the leased lands (43 CFR 3162.1(a)). BLM must preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA. The DEIS clearly and accurately demonstrates that unnecessary and undue impacts will occur to resources in the PAPA. The RP Alternatives would be one way to reduce undue and unnecessary impacts.

**Comment 46:** BLM disagrees that it must always strive to allow first for maximization of the economic recovery of the mineral resource regardless of the environmental consequences. See response to Comment 45, this letter.

**Comment 47:** See response to Comment 34, Letter 7 – Gene R. George & Associates, Inc.

**Comment 48:** The conclusion reached by this comment that no reduction in long-term surface disturbance would be achieved by pad drilling may be correct. However, the comment misses the point that reductions in well pad density and human presence across a wide landscape are also very important mitigative values of the RP Alternatives. In many cases, fewer actual locations which concentrate activities which otherwise would be more spatially dispersed would far outweigh the environmental benefits of less disturbance if it is widely dispersed. See response to Comment 34, Letter 7 – Gene R. George & Associates, Inc.

**Comment 49:** BLM concurs with this assessment. Again, it is important to stress that BLM does not believe that pad drilling can be used during the exploratory phase of the project. It may also be impracticable to use pad drilling for confirmation wells. Rather, it is envisioned as a tool for reducing the impacts of field development once productive areas are discovered.

**Comment 50:** The conclusion that pad drilling would have "little, if any, positive effect" is incorrect and inconsistent with conclusions reached in Chapter 4 of the DEIS. See response to Comment 48, this letter.



**Comment 51:** If RP Alternative measures and mitigation opportunities are implemented to protect wildlife, it does not “logically follow” that directional wells “will result in increased drilling-related impacts to wildlife” as this comment concludes. However, even if such temporary impacts do occur, they would be far less severe than the SS Alternative long-term operational-related impacts associated with developing crucial winter range, the Sensitive Viewshed SRMZ, areas adjacent to the Lander Trail, etc. with 16 well pads/section.

**Comment 52:** This comment somehow concludes that “public good” is to be measured solely based on rate of payment of royalties. It ignores the fact that maintaining viable populations of wildlife, protecting visual and recreation resources, minimizing water quality impairment, etc. are also important to the “public good”. Decisions about allowable levels of impact to the natural resources occurring on the leases cannot be made strictly on how much revenue would be lost or gained. See also, response to Comment 48, this letter.

**Comment 53:** The comment does not define what constitutes an “unacceptable waste of hydrocarbons and loss of federal royalties”. In the public interest it may be prudent to delay recovery or allow portions of the mineral estate to not be recovered.

**Comment 54:** BLM concurs with the comment that if the lenticular sands are not effectively drained, hydrocarbons will be forgone. Whether this is unacceptable or not has to be weighed against the need to protect other natural resources and environmental quality.

**Comment 55:** BLM concurs with the comment.

**Comment 56:** Again, it is important to stress that BLM does not believe that pad drilling can be used during the exploratory phase of the project. It may also be impracticable to use pad drilling for confirmation wells. Rather, it is envisioned as a tool for reducing the impacts of field development once productive areas are discovered.

**Comment 57:** BLM concurs with the basic fact that directionally drilling is more complicated. However, the statement that one in four “S” shaped wellbores would be lost and that drilling problems would be experienced in all the rest is exaggerated. BLM believes that a few “S” shaped wellbores could be lost and some may experience drilling problems; however, as has been demonstrated by the industry in the past, the operators would learn from these failures and would come to drill the “S” shaped wellbores more efficiently and with minimal risk.

**Comment 58:** BLM concurs with the comment. Directionally drilling is technically challenging and more expensive.

**Comment 59:** BLM concurs with the comment. Timing the setting of intermediate casing is critical to the prevention of wellbore collapse.

**Comment 60:** BLM concurs with the comment. Casing protectors are essential to successful directional drilling.

**Comment 61:** BLM concurs with the comment. Directional drilling to date has demonstrated that intermediate casing needs to be set in all directionally drilled wells. An intermediate casing string definitely adds to the cost of a directional well.

**Comment 62:** See response to Comment 44, this letter. Again, it is important to stress that BLM does not believe that pad drilling can be used during the exploratory phase of the project. It may also be impracticable to use pad drilling for confirmation wells. Rather, it is envisioned as a tool for reducing the impacts of field development once productive areas are discovered and economic viability of development wells can be better predicted.

**Comment 63:** These issues could be addressed through formation of a unit – they do not preclude the concept of centralized production.

**Comment 64:** The estimate of disturbance was provided by Ultra, after review by other operators in the PAPA. BLM believes the estimate of disturbance is adequate for purposes of analysis. See response to Comment 48,



this letter.

**Comment 65:** BLM agrees that it may be necessary to keep the road open to the well pad for the first year, or in some cases even longer. However, it is anticipated that the actual benefit of being able to reduce traffic in crucial winter ranges would be accrued over the long-term as production from the well stabilizes.

**Comment 66:** It is noted that the estimate that centralized production facilities would reduce the need to visit well pads in the PAPA to approximately 5 percent annually was calculated by McMurry. In fact, the list of events which could require winter visits found on page 2-50 was prepared by McMurry. Apparently, the 5 percent estimate included in the DEIS is now considered too low. However, even if the need to visit wells is reduced by 50 percent, the benefit to wintering big game could still be considerable and the mitigation worthwhile.

**Comment 67:** The statement that plowed roads could be beneficial to wildlife has some merit and would be considered. Use of snow machines and snow cats to access well sites is not uncommon. This is typical winter operations for Exxon's LaBarge Project.

**Comment 68:** BLM disagrees with the conclusion that centralized production would not reduce visual impacts. See response to Comment 48, Letter 12 – Questar Market Resources Group.

**Comment 69:** See response to Comment 4, this letter.

**Comment 70:** McMurry is incorrect in stating that the SS Alternative would impose an 8 rig limit in the PAPA. The DEIS assumes an average of 8 rigs working in the PAPA year-round only for purposes of assessing impacts. No rig limit is contemplated by the alternative.

**Comment 71:** See response to Comment 10, Letter 7 – Gene R. George & Associates, Inc. and Comment 4, this letter.

**Comment 72:** See responses to Comments 45 and 46, this letter.

**Comment 73:** See response to Comment 10, Letter 7 – Gene R. George & Associates, Inc.

**Comment 74:** See response to Comment 10, Letter 7 – Gene R. George & Associates, Inc.

**Comment 75:** This comment is not correct. By slowing the pace of the development, the peak impact at any one time is reduced. For instance, although increased traffic may occur over a longer time frame, the peak traffic at any one time will be reduced. The same applies for surface disturbance and emissions from drilling and fugitive dust, etc. The same conclusion was reached regarding human presence in the PAPA. Obviously, associated development activities, such as pipelines, would be incrementally slowed. Also, see response to comment 38, this letter.

**Comment 76:** BLM disagrees. Chapter 4 of the DEIS provides extensive documentation that leads to the reasonable conclusion that human presence will adversely affect habitat function. As can be seen by reviewing previous comments in this letter, BLM disagrees with McMurry's attempt to demonstrate that the conclusion reached in the wildlife impact assessment are erroneous.

**Comment 77:** This comment seems to conclude that slower development would somehow be more detrimental to wildlife than a pace driven by maximum economic return. However, the reasoning provided has nothing to do with the overall effect of human presence on habitat function. The point made in this comment is irrelevant when considering long-term impacts to wildlife from human presence.

**Comment 78:** See response to Comment 11, Letter 7 – Gene R. George & Associates, Inc. Extending the receipt of revenues from the project is disclosed in Table 2-15 of DEIS and may actually result in positive impacts to long-term revenue sources in Sublette County, particularly for the school district.



**Comment 79:** See response to Comment 70, this letter. Regardless, the estimates provided in the DEIS are adequate for purposes of analysis.

**Comment 80:** See response to Comment 75, this letter.

**Comment 81:** See response to Comment 70, this letter.

**Comment 82:** BLM recognizes that other methods could be used to predict impacts from HAPs and impacts to air quality related values. Generally, the assumptions used in the DEIS to assess these impacts were conservative. However, the methods were approved by an interdisciplinary team which included the BLM, National Park Service, EPA, U.S. Forest Service and the State of Wyoming. For purposes of analysis and disclosure, the approach used in the DEIS is considered reasonable and adequate.

**Comment 83:** See response to Comments 16, 19, 20 and 37, Letter 7 - Gene R. George & Associates, Inc. and Comments 25 and 46, Letter 11 - Ultra Resources.

**Comment 84:** See response to Comments 14, 20 and 38, Letter 7 - Gene R. George & Associates, Inc.

**Comment 85:** See response to Comment 28, Letter 7 - Gene R. George & Associates, Inc. and Comments 60, 63 and 65, Letter 11 - Ultra Resources.

**Comment 86:** The attachments to McMurry's comment letter were not printed. Copies are available directly from McMurry.

## **Letter 14 - BP Amoco**

**Comment 1:** See response to Comment 10, Letter 7 – Gene R. George & Associates, Inc.

**Comment 2:** See response to Comments 38 and 75, Letter 13 – McMurry Oil Company.

**Comment 3:** See response to Comment 11, Letter 9 – Bjork, Lindley Danielson & Baker P.C.

**Comment 4:** BLM recognizes that it may be difficult to effectively screen facilities from view in the southern portion of the PAPA. VRM III is defined on page 3-27 of the DEIS - the definition is from BLM's Visual Resource Management System. Site-specific analysis has not been completed to determine whether the east side of U.S. Highway 191 is less or more sensitive than the west side in the southern portion of the PAPA. Such determinations would be made on a case-by-case basis. Both are managed as VRM III and IV (see Figure 3-9 on page 3-28 of DEIS).

**Comment 5:** It is important to recognize that the mitigation opportunity is but a small extension of the already established SRMA designated by the Green River Resource Management Plan. The SRMA in the Green River Field Office Area also is bordered by U.S. Highway 191 on the west. The only reason the parcels in question were excluded from the SRMA was the fact that they were located in the Pinedale Field Office Area. BLM considers the mitigation opportunity both relevant and reasonable and it was recommended in compliance with CEQ regulations that require identification of measures that would improve the project (see Letter 1, page 2, paragraph 1 – EPA).

**Comment 6:** See response to Comment 12, Letter 7 – Gene R. George & Associates, Inc.

**Comment 7:** See response to Comments 14 through 20, Letter 7 – Gene R. George & Associates, Inc.

**Comment 8:** Directional drilling from 4 well pads/section is one option for development within big game winter habitats. Another option analyzed in the DEIS was the use of centralized production facilities which would allow up to 16 wells/section.



**Comment 9:** See response to Comment 34, Letter 7 – Gene R. George & Associates, Inc.

**Comment 10:** See response to Comment 4, Letter 7 – Gene R. George & Associates, Inc.

**Comment 11:** See response to Comment 30, Letter 12 - Questar. Unfortunately the BLM and the public were led to believe by the operators that central production facilities were feasible, that they were, in fact, in use at other places in Wyoming. The operators presented the proposal to use CPFs to BLM as a means of reducing human presence and vehicle traffic impacts on big game and sage grouse while allowing 16 conventional straight-hole wells to be drilled and produced per square mile. Several meetings were held between the operators and the BLM and cooperating agencies to discuss their application. BLM then presented the concept to the public at several workshops held in Pinedale. It appeared that a very significant solution had been identified that would allow for the economic development of the natural gas resource while reasonably protecting the environment. Now all the operators, in their comments on the DEIS, are telling BLM and the public that this is not feasible for a myriad of reasons. This is not good.

BLM is, however, encouraged by BP-Amoco's statement that it "...believes that by allowing some level of flexibility, innovative solutions can be found that again allow for the maximum recovery of the natural gas resource and also protect the sage grouse nesting habitat (crucial big game winter habitat, sensitive viewshed, etc.) found in the project area". BLM will be looking for the operators to come up with innovative ways of making the CPFs technologically and economically viable or identifying some other comparable method of meeting the objective of impact reduction. The primary objective for using CPFs is to reduce the frequency of human presence/activity at the well during the critical periods for wildlife and to reduce visual impacts at other sites. If tanker traffic/human presence can be eliminated at 15 of 16 wells and the number of maintenance trips reduced by remotely controlled well facilities located in a sensitive area, then the majority of the objective will have been met.

The use of CPFs would not be applied immediately. Exploratory drilling is expected to occur first to locate the spots of economical well development. If these are in sensitive resource management areas (e.g., crucial winter range, sage grouse strutting and nesting habitat, sensitive viewshed, Lander Trail viewshed), then an evaluation of the most efficient way of reducing impact (e.g., pad drilling, CPFs, or other means) will be conducted. The AEM planning process will provide the opportunity for developing guidance and making mid-course correction in adapting to the inevitable problems or changes associated with and inherent in such a complex project as this.

**Comment 12:** See response to Comment 21, Letter 7 – Gene R. George & Associates, Inc.

**Comment 13:** See response to Comment 22, Letter 7 – Gene R. George & Associates, Inc.

**Comment 14:** See response to Comment 23, Letter 7 – Gene R. George & Associates, Inc.

**Comment 15:** See Figure I.F-6 on page 45, Wildlife Technical Report.

**Comment 16:** See response to Comment 26, Letter 7 – Gene R. George & Associates, Inc.

**Comment 17:** BLM fully agrees with BP-Amoco on this point. It was BLM's plan to hold the March 3, 2000 PA meeting in January, so as to allow the operators ample time to consider the pros and cons of a PA. Unfortunately, schedules simply didn't allow for the meeting to be conducted until after the DEIS comments were due. This delay has resulted in several operators comments akin to BP-Amoco's. BLM regrets the delay and apologizes for the resultant confusion and misinformation, apparent in several comments.

**Comment 18:** BLM is cognizant of the concerns raised by Amoco regarding the extent of the monitoring associated with the AEM planning process. However, because the potential threats to natural resources are so severe, BLM is compelled to recommend a process that far exceeds monitoring applications developed for past projects. Unfortunately, BLM will not have the funds available to implement this plan. Therefore, the cost will have to be borne by the operators.



**Comment 19:** See response to Comment 82, Letter 13 – McMurry Oil Company.

### **Letter 15 - People for the USA, Flaming Gorge Chapter**

**Comment 1:** Thank you for your comment.

### **Letter 16 - Conservancy of the Phoenix**

**Comment 1:** No power poles are proposed.

**Comment 2:** BLM is unaware of this study. If possible, could you please supply or reference the information stated in your comment as it is very pertinent to the current debate about protecting sage grouse nesting habitat and leks in the PAPA. Thank you.

### **Letter 17 - Southwest Wyoming Mineral Association**

**Comment 1:** Thank you for your comment.

### **Letter 18 - The Humane Society of the United States**

**Comment 1:** It is very important to point out that the DEIS is not for a leasing project. Leasing has already occurred (see page 1-1 of the DEIS).

**Comment 2:** See Chapter 4, RP Alternative, DEIS.

**Comment 3:** See Wildlife Mitigation Opportunity 16, page 4-167 of the DEIS.

**Comment 4:** See Wildlife Mitigation Opportunity 18 and Section 4.19.5, pages 4-167 and 4-168 of the DEIS.

**Comment 5:** Such measures are standard stipulations in the PAPA. See Table 2-8 and Appendix A of the DEIS.

### **Letter 19 - North American Pronghorn Foundation**

**Comment 1:** Potential impacts to pronghorn have been addressed throughout the DEIS in Chapter 3 (page 3-72 through 3-74), in Chapter 4 (particularly see Table 4-45 and pages 4-146, 4-151, 4-152), in Chapter 5 (pages 5-27 through 5-30) and the Wildlife Technical Report. Impacts to antelope have been thoroughly addressed.

**Comment 2:** The baseline data requested by this comment has been provided in Chapter 3 (see pages 3-72 through 3-74 of the DEIS).

**Comment 3:** The purpose of the DEIS is not to define management goals; those have been addressed in BLM's RMP and WGFD annual big game herd unit reports. In addition, it is important to clarify that this is not a leasing EIS. Leasing has occurred in the area. See page 1-1 of the DEIS.

**Comment 4:** See Wildlife Mitigation Opportunity 7-1 and 7-2 on page 4-166 and Wildlife Mitigation Opportunity 15 on page 4-167 of the DEIS.

**Comment 5:** See Wildlife Mitigation Opportunity 15 on page 4-167 of the DEIS.

**Comment 6:** This recommendation is the basis of the RP Alternatives described in Table 2-8 of the DEIS.

**Comment 7:** The AEM planning process, identified in Appendix F in the DEIS, would accomplish this goal.



**Comment 8:** See Wildlife Mitigation Opportunity 7-1 and 7-2 as well as Section 4.19.5 in the DEIS.

**Comment 9:** Extensive data and analysis of impacts to species other than endangered and sensitive species are provided in Section 3.20 and Section 4.19 in the DEIS.

**Comment 10:** The DEIS made significant effort to analyze biological requirements of pronghorn as those would be potentially affected by any of the alternatives. Potential effects of livestock grazing and other land uses were incorporated in the pronghorn winter habitat model along with physical and biological factors that promote functional winter habitat for pronghorn. These have been described in detail in the Wildlife Technical Report and summarized in the DEIS.

**Comment 11:** Protection of crucial pronghorn habitats are described in Appendix A under BLM Standard Stipulations and Best Management Practices and further protective measures were incorporated in the Resource Protection Alternative and analyzed extensively in Section 4.19 of the DEIS. Specific management practices that would benefit pronghorns and other wildlife are itemized in Section 4.19.4 of the DEIS under Wildlife Mitigation Opportunities.

**Comment 12:** See Comment 3, this letter.

**Comment 13:** Crucial habitats used by pronghorns have been delineated and included in the DEIS (see Figure 3-19, page 3-73). The Wyoming Game and Fish Commission Mitigation Policy (1998) defines crucial habitats as a "vital" wildlife resource (see Table 4-44, page 4-120 DEIS) but has not defined pronghorn fawning or migratory corridors as crucial habitat. However, research is in progress that will reveal pronghorn movement routes in the vicinity of the PAPA. If additional protection to these habitat components becomes necessary, the AEM planning process is the appropriate vehicle to change management strategies as new information becomes available over the life of the project.

**Comment 14:** BLM is not aware of recommendations in the DEIS made to manage fawning areas for any big game species. Since the majority of pronghorns inhabiting the PAPA do so during winter, fawning during late May and early June occurs when does are on summer or transition ranges distant from the PAPA.

**Comment 15:** BLM recognizes the value of shrubs and forbs to pronghorn and other wildlife and has incorporated several provisions in the DEIS to maintain these species in the project area. See Wildlife Mitigation Opportunity 18 and Monitoring Requirements in Section 4.19.5; see Vegetation Mitigation Opportunities in Section 4.15.4 and Vegetation Monitoring Requirements in Section 4.15.5; see the Erosion Control, Revegetation and Restoration Plan (ERRP) in Appendix A-4.

**Comment 16:** Please note there are very limited grasslands on the PAPA with the vast majority covered by sagebrush steppe vegetation (see Table 3-28, page 3-53 DEIS). With respect to available water, see Figure 3-17 on page 3-60 and Wildlife Mitigation Opportunity 7 on page 4-166 in the DEIS.

**Comment 17:** The project would not contribute new fencing that would be likely to hinder pronghorn movements and increase mortality. The only fencing that has been recommended in the DEIS would be erected around reserve pits and well pads (see Grazing Mitigation Opportunity 3) as measures to prevent livestock injury or mortality and at reclaimed sites (Wildlife Mitigation Opportunity 7) to enhance revegetation success. Also see Comment 6, this letter. The comment appears to confuse the DEIS with BLM's Pinedale RMP.

**Comment 18:** State-wide trends in Wyoming of pronghorn populations during the past 20 years are now being examined by the Wyoming Cooperative Wildlife Research Unit to determine whether there have been declines to the extent suggested by this comment.

## **Letter 20 - Wyoming People for the USA**

**Comment 1:** The comment that deer in the Big Piney area are now near objective is erroneous. WGFD big



game population objectives are set to coincide with public demand, not necessarily based on the range carrying capacity. In 1991, prior to the severe winter of 1992, the population estimate made for the Wyoming Range Mule Deer Herd Unit (that includes the Big Piney area) was 57,200 mule deer while the population objective for that year was 38,000 deer. In 1998, the population estimate for the herd unit was 33,423 deer while the population objective was 50,000 deer. In other words, the public has requested more mule deer in the herd unit since 1991 but the estimated population is considerably less now than in 1991. Analyses of fawn production in the herd unit since 1992 show that it is significantly less from 1992 to 1998 than prior to 1992 (see Table II.E-3, page 64 of the Wildlife Technical Report). While depressed fawn production coincides with the increased drilling activity described in the comment, there is insufficient information to determine cause-and-effect relationships between the two events. Alternatively, there is no evidence to suggest the population has responded positively coincidentally with increased drilling activity as claimed in the comment.

## **Letter 21 - Wyoming Wildlife Federation**

**Comment 1:** BLM does not disagree with the comment regarding the global perspective of the need for and supply of natural gas. However, the purpose of this EIS is not to justify the decisions made to lease this area for natural gas development. Those decisions have been made over a number of years and, regardless of the comment's assertion that there is questionable need for the project, give the operators the right to develop the leases. BLM cannot now condition development of those leases on some sort of index of global demand, as this comment seems to suggest.

**Comment 2:** As is stated in Section 2.2.3 of the DEIS, the "public choice" to allow development of the PAPA was made when the lands were leased. BLM cannot now make a contrary choice and disallow development.

**Comment 3:** The comment suggests that BLM should facilitate the coordination of leasing agreements among parties within the PAPA. The opportunity to facilitate leasing parcels within the PAPA has passed. However, BLM can facilitate unitization agreements. This could allow a lessee of a small or isolated parcel to participate in the revenues of development without drilling a well on its lease or by drilling fewer wells. This opportunity has been discussed in Section 4.2 of the DEIS.

**Comment 4:** Action on such a recommendation is outside the scope of this NEPA document.

**Comment 5:** There is no scientific evidence to support that oil and gas activities or a developed field inhibits or impedes the movement or migration of antelope, mule deer, elk or other terrestrial species. BLM concurs that oil and gas development does have an effect on recreation and scenic values as discussed in the DEIS.

**Comment 6:** For the reasons identified in Section 2.3.3 (page 2-5 of the DEIS), BLM cannot restrict development to 1 or 2 well pads/section.

**Comment 7:** The Reservoir Management Group did not evaluate the technical feasibility of drilling 40 acre bottom holes from 1 well pad/section because the alternative was deemed to be unfeasible technically and unreasonable. The statement is being taken out of context. Current technology precludes the ability to develop the PAPA using directional drilling from 1 well pad/section. The tremendous offsets which would be required to reach 40 acre bottom holes across an entire section from 1 surface location is beyond the limits of current technology.

**Comment 8:** All of these items are discussed in Section 4.19.4 of the DEIS.

**Comment 9:** Pit liners are not typically removed at the time of reclamation. The comment provides no justification as to why this would be necessary or environmentally preferable.

**Comment 10:** The RP Alternative recommends the use of low profile tanks, but not unilaterally throughout the project area. BLM sees no need to install low profile tanks in areas not designated as visually sensitive. Also, it is important to point out that low profile tanks would likely not meet storage requirements for centralized



production facilities because of volume requirements.

**Comment 11:** Item 1 – Ultra’s contribution of support for wildlife studies is recognized throughout the DEIS. Items 2 through 6 are included in Section 4.19.5 of the DEIS.

**Comment 12:** As is stated in the DEIS and as recognized by this comment, BLM cannot require the adoption of the RP Alternative on All Lands and Minerals.

**Comment 13:** Such an opportunity would be appropriately evaluated through the AEM planning process.

**Comment 14:** Obviously, if the sage grouse is listed or proposed, BLM would be required to reassess all of its management programs to assure that the continued existence of the species is not jeopardized.

## **Letter 22 - Wildlife Management Institute**

**Comment 1:** What the DEIS states is that, because the PAPA is leased, BLM no longer has the lawful ability to preclude surface disturbance, even if that disturbance results in significant impacts. It is intuitive to conclude that if extensive development occurs in crucial winter ranges there will be some loss of the function of that habitat. All BLM can do, again because the area is leased, is implement reasonable mitigation measures to eliminate undue and unnecessary impacts. The RP Alternatives addressed in the DEIS accomplish this goal.

**Comment 2:** There are numerous wildlife mitigation opportunities described in Section 4.19.5 of the DEIS, some of which BLM can impose on Federal lands and others for which implementation by the operators would be voluntary, that address issues of habitat enhancement. Whether implementing those opportunities proactively or reactively will be determined through the AEM planning process (see Appendix F).

**Comment 3:** The EIS is not a decision document. Since the DEIS is for disclosure rather than implementation, use of the words would, could, should or voluntary is appropriate. BLM cannot impose mitigation on non-Federal lands. Voluntary is appropriate for describing these mitigation opportunities.

**Comment 4:** The DEIS provides disclosure of extensive mitigation in terms of the RP Alternatives and Wildlife mitigation opportunities. The mitigation proposed in the DEIS is anything but meager.

**Comment 5:** The commitment is BLM’s decision to implement the AEM planning process.

**Comment 6:** This comment completely ignores the extensive discussion contained in Chapter 2 of the DEIS that describes BLM’s obligations to allow development of the leases. Yet, the comment offers no suggestions as to how the existing alternatives could be structured to lawfully allow more environmental protection. The RP Alternatives offer the maximum extent of environmental protection allowed without significantly affecting the operator’s ability to develop the leases.

**Comment 7:** See Section 4.17.4 of the DEIS. No specific recommendations are contained in the comment that indicate how these measures are insufficient.

**Comment 8:** The research on big game referred to in this paragraph is in progress. Preliminary results of those studies funded by Ultra Resources, Inc. have been utilized or otherwise anticipated in the DEIS where appropriate. For example, Wildlife Mitigation Opportunity 15 recognizes the effects of fencing on both pronghorn and mule deer migrations and the migratory bottlenecks that have been revealed during the studies referenced in this comment. However, many fences that impede movements are associated with private property and subdivisions near Pinedale. BLM has no authority to impose modification of those.

**Comment 9:** The AEM planning process (Appendix F) will insure that newly available information, from whatever source, is applied to decision making.



**Comment 10:** The DEIS has amply addressed all components of sage grouse habitat. Even a cursory review of the DEIS indicates that extensive analysis on potential effects to sagebrush habitats utilized by sage grouse has been discussed in the DEIS and Wildlife Technical Report.

**Comment 11:** Many of these leases are held by producing wells or are dedicated to units in the PAPA. Any development of these leases will be required to comply with all reasonable mitigation.

**Comment 12:** This comment is completely inaccurate. Analyses presented in Chapter 5 include potential effects of oil and gas developments on big game population parameters in all of southwestern Wyoming (see Figures 5-7 and 5-8). Likewise, potential impacts to sage grouse have been examined in two Upland and Small Game Management Areas that cover most of Sublette County and a large portion of Sweetwater County. The Wildlife Technical Report provides more in-depth descriptions of the analyses.

**Comment 13:** Throughout Wyoming, BLM currently gives consideration to withholding parcels from lease during the leasing process. The parcels that would be withheld are those that have not received proper environmental review.

**Comment 14:** More thorough review of the DEIS would have shown that all the concerns raised are addressed in the DEIS.

## **Letter 23 - Greater Yellowstone Coalition and Jackson Hole Conservation Alliance**

**Comment 1:** See response to Letter 3, Comment 1 – National Park Service. BLM cannot require or implement a pollution credit system. Obviously, BLM agrees that any measure, consistent with lease rights, which reduces any environmental damage associated with development of Federal lands is a worthwhile pursuit. However, a pollution credit system is beyond BLM's regulatory authority.

**Comment 2:** As the DEIS states, no one knows how many wells will be required to develop leases in the PAPA. The figure of 700 wells used in the DEIS (not 500 as the comment states) is a guess that falls somewhere between the optimistic and pessimistic estimates provided by the various operators and is considered adequate for purposes of analysis. If, as your comment suggests, only 200-300 wells are needed to adequately develop the PAPA, less impacts than those predicted in the DEIS would occur.

**Comment 3:** BLM has developed extensive GIS coverages specifically for this project – in fact most of the quantification of impacts in the DEIS were prepared using GIS. See, for example, the approach taken in Section 4.19.5 for wildlife monitoring as well as the level of analyses included in Chapter 5 and the Wildlife Technical Report.

**Comment 4:** The BLM is already giving consideration to withholding public lands from lease when new information indicates that the RMP covering lands under consideration is inadequate and/or incomplete. BLM is presently in the process of requesting Washington Office funding to support an assessment of the status of southwestern Wyoming reasonably foreseeable development and affected biological and socioeconomic resources. This is in response to the 1998 Southwest Wyoming Resource Evaluation Report recommendations.

**Comment 5:** This alternative was considered and, as was concluded in the DEIS, an alternative based on limiting the number of well pads to no more than 1 per section is neither technically or economically feasible (see Section 2.3.3 of the DEIS).

**Comment 6:** These measures are incorporated into the RP Alternatives.

**Comment 7:** See Appendix A, DEIS. The measures described for seasonally avoiding crucial wildlife habitats will be adopted regardless of the alternative selected in the ROD. Recommended monitoring are specified in the following sections of the DEIS: Wildlife - Section 4.19.5 (page 4-167); groundwater - Section 4.13.2.4 (page 4-84);



surface water - Section 4.13.3.4 (page 4-92); and air quality - Section 4.10.5 (page 4-78).

**Comment 8:** See Wildlife Mitigation Opportunity 16, page 4-167 of the DEIS and Letter 4, Comments 17 and Comment 18 - USFWS. See Appendix A, page A-10, item 10.

**Comment 9:** Such a team would be established as part of the AEM planning process (see Appendix F of the DEIS).

**Comment 10:** The need for further air quality monitoring will be addressed as a part of the AEM planning process.

**Comment 11:** See response to Comment 1, this letter.

**Comment 12:** See Wildlife Mitigation Opportunities 10, 13 and 15, page 4-167 of the DEIS.

**Comment 13:** This suggestion is beyond the authority of the BLM to require on non-Federal lands. However, BLM can recommend to the Wyoming Oil and Gas Conservation Commission, Corps of Engineers, etc. that the construction, drilling and development mitigation measures identified in the DEIS be imposed on non-Federal lands.

**Comment 14:** The use of native species in reclamation is a standard BLM practice (see Appendix A of the DEIS).

**Comment 15:** This recommendation is currently being evaluated by the Transportation Committee.

**Comment 16:** See response to Comment 2, this letter.

**Comment 17:** Monitoring of grazing allotments is a standard BLM practice.

## **Letter 24 - Petroleum Association of Wyoming**

**Comment 1:** See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc.

**Comment 2:** See response to Comment 2, Letter 7 – Gene R. George & Associates, Inc.

**Comment 3:** CEQ regulations require BLM to identify reasonable and relevant measures that could improve a project (see Letter 1, page 2, paragraph 1 - EPA). The measures are to be included in a NEPA document even if they are beyond the authority of the lead agency to implement.

**Comment 4:** See response to Letter 7, Comments 3, 4 and 5 – Gene R. George & Associates, Inc.

**Comment 5:** This comment is incorrect. The reference contained in this comment is to Table 2-8 of the DEIS. The RP Alternatives do not restrict the number of rigs working north of the New Fork River to 2 as this comment suggests. It would only limit the number of rigs working on new locations north of the river. In fact, all 5 rigs analyzed for this alternative could work north of the river as long as 3 rigs were pad drilling. See also response to Letter 7, Comment 10 – Gene R. George & Associates, Inc.

**Comment 6:** See response to Letter 7, Comment 10 – Gene R. George & Associates, Inc.

**Comment 7:** The decision on whether total NOx or horsepower of compression will be used to trigger additional NEPA analysis will be determined in the ROD. See response to Letter 12, Comment 18 – Questar.

**Comment 8:** See response to Letter 7, Comment 34 – Gene R. George & Associates, Inc.



**Comment 9:** See response to Comment 33, Letter 7 – Gene R. George & Associates, Inc. and responses to the operator's numerous comments regarding problems associated with directional drilling.

## **Letter 25 - The Mule Deer Foundation**

**Comment 1:** The comment asks that the destruction of habitat quality be evaluated. Sections 3.19 and 4.19 provide extensive discussion on mule deer habitat quality and impacts of development.

**Comment 2:** There are numerous wildlife mitigation opportunities described in Section 4.19.5 of the DEIS, some of which BLM can impose on Federal lands and others for which implementation by the operators would be voluntary, that address issues of habitat enhancement. Whether implementing those opportunities proactively or reactively will be determined through the AEM planning process (see Appendix F).

**Comment 3:** The DEIS contains significant discussion about how pad drilling and centralized production facilities could be used to reduce impacts to mule deer as well as other wildlife species. The recommendations contained in this comment are discussed for the RP Alternatives. Generally, these measures are described in Chapter 2 of the DEIS, in Section 2.7.2. Section 4.19.4 and 4.19.5 list numerous additional mitigation and monitoring opportunities to the standard measures listed Appendix A.

**Comment 4:** It is incorrect to assume that impacts are not "inevitable". Development is going to occur and, if development is extensive, significant impacts will occur. The area was leased without no surface occupancy stipulations.

**Comment 5:** The DEIS discloses that impacts would occur in habitats that receive high priority under the Wyoming Game and Fish Commission Mitigation Policy and, based on the impact significance criteria described in Section 4.19.2, those impacts would be significant. However, it is important to recognize that the mitigation guidelines do not supersede lease rights. In fact, there is no mechanism even on state lands to impose the mitigation guideline.

## **Letter 26 - Wyoming Chapter of the Sierra Club**

**Comment 1:** The comment is misquoting the DEIS – BLM is not amending the RMP. On page 1-13, the DEIS states that "this EIS will serve to update the impact analysis for reasonably foreseeable development for oil and gas drilling in the Pinedale RMP". BLM does not consider such an update an amendment to the RMP. The update does not affect/change any decisions made in the RMP.

**Comment 2:** See response to Letter 23, Comment 3 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 3:** BLM believes that more than adequate air quality modeling/analysis was completed for this project. The interdisciplinary team, which designed the air quality analysis protocol, included the BLM, Forest Service, National Park Service, State of Wyoming and the EPA. All these agencies have concluded that modeling was adequate. See response to Letter 1 – EPA, Letter 2 – Forest Service, Letter 3 – National Park Service, and Letter 5 – State of Wyoming. Extensive detail is also provided in the Air Quality Technical Report.

**Comment 4:** BLM cannot impose a restriction on permittee motorized vehicles which is different than what it requires of other users of Federal lands.

**Comment 5:** See response to Letter 23, Comment 4 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 6:** See response to Letter 23, Comment 5 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.



**Comment 7:** See response to Letter 23, Comment 2 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 8:** See response to Letter 23, Comment 6 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 9:** See response to Letter 23, Comment 7 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 10:** See response to Letter 23, Comment 8 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 11:** See response to Letter 23, Comment 9 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 12:** All of the measures suggested under this comment are regulated under the authority of the Wyoming Department of Environmental Quality. BLM cannot force operators to use electric compression – only WDEQ/AQD has such authority. In addition, the operators must comply with WDEQ water quality regulations.

**Comment 13:** See response to Letter 23, Comment 13 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 14:** See response to Letter 23, Comment 10 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 15:** See response to Letter 23, Comments 9 and 12 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 16:** See response to Letter 23, Comment 14 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 17:** If BLM restricted development within 2 miles of sage grouse leks, the vast majority of the PAPA could not be developed (see Figure 3-22 on page 3-79 of the DEIS). In essence, BLM would be implementing a No Action Alternative, which the DEIS clearly states the BLM cannot do (see Section 2.2.3). See response to Letter 23, Comment 7 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 18:** See response to Letter 23, Comment 15 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 19:** This mitigation opportunity is included in the DEIS on page 4-61 (see Visual Mitigation Opportunity 6).

**Comment 20:** A similar recommendation is included in Section 4.13.2.4 (Monitoring Recommendations for Groundwater). The need for groundwater monitoring will be evaluated through the AEM planning process.

**Comment 21:** BLM is mandated to provide for maximum economic recovery while still allowing for protection of natural resources (see 43 CFR 1362.1(a)). BLM agrees that it must balance the needs of all interests in the PAPA – however, BLM cannot deny development of the leases even if development results in significant impacts to the environment. See response to letter 7, Comment 33 – Gene R. George & Associates, Inc.

**Comment 22:** The RP Alternatives analyzed a rig limit that would slow the pace of development in the PAPA. See response to letter 7, Comment 10 – Gene R. George & Associates, Inc.

**Comment 23:** BLM believes that the RP Alternatives provide reasonable and relevant mitigation to prevent



undue and unnecessary impacts from occurring from development. BLM has strived to develop an alternative that maximizes environmental protection without unduly interfering with the lease rights of the operators.

**Comment 24:** See response to Comment 1, this letter.

**Comment 25:** See response to Comment 2, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 26:** The issue of limiting well pad density to 2 pads/section is addressed in Section 2.3.3 of the DEIS (see page 2-5). As is stated in the DEIS, limiting well densities to below 4/section would not be technically or economically feasible, raising issues related to “taking” of rights granted to the operators in the leases. Whether 4 well pads/section could result in a legally defined “take” of wildlife that belong to the people of Wyoming, as this comment suggests, would have to be determined by a court of law.

**Comment 27:** The DEIS explains that many of the leases were issued nearly 50 years ago when environmental restrictions were not imposed in the lease terms. It is true that some operators have recently obtained leases in the PAPA from other lease owners, but for the most part the leases are relatively unencumbered by environmental restrictions due to their age. BLM can impose only reasonable mitigation requirements on the lessee/operator.

**Comment 28:** The results of 3-D seismic exploration are not available to the public (including the BLM). The results are only available to those companies which paid for collection of the data.

### **Letter 27 - Upper Green River Cattle Association**

**Comment 1:** Please see Groundwater Mitigation Opportunity 4 on page 4-84 of the DEIS. BLM will consider adoption of this mitigation opportunity during development of the ROD. See response to Letter 7, Comments 51 and 52 – Gene R. George & Associates.

**Comment 2:** BLM continues to welcome the grazing permittees continued involvement in the Transportation Committee. BLM also hopes the permittees will consider becoming active in the AEM planning process (see Appendix F) because of their unique knowledge regarding the PAPA.

**Comment 3:** Please see response to Letter 29, Sommers Ranch Partnership.

### **Letter 28 - Klaren Cattle Co., Inc.**

**Comment 1:** Thank you for your comment. BLM believes that the DEIS has taken all of your comments into consideration. See response to Letter 27, Comment 2 – Upper Green River Cattle Association.

### **Letter 29 - Sommers Ranch Partnership**

**Comment 1:** BLM will evaluate the suitability of the mitigation measures included in this comment in development of the ROD. BLM cannot formally adopt such measures in an EIS because the EIS is informational only and is designed to seek public comment on proposals and the adequacy of mitigation. BLM cannot make decisions until after the draft and final EIS comment periods.

**Comment 2:** BLM concurs with this comment. Please see the Errata for page 4-108 of the DEIS.

**Comment 3:** See Errata for page 3-36 of the DEIS. Price Ranch has been added.

**Comment 4:** You are undoubtedly correct suggesting that there are numerous factors that have contributed to declining sage grouse populations. As recent studies on the PAPA suggest and Jim Noble’s comment during the hearing confirm, predation is likely another contributing factor. Different factors are probably influential in different



parts of their range. The DEIS cites studies that indicate the importance of vegetation cover, particularly herbaceous vegetation, to conceal nests early in the nesting season before new growth occurs. If that cover is absent, for whatever reasons (including grazing), exposed sage grouse nests are more likely to be predated and fail than nests at sites where there is sufficient herbaceous cover at the onset of nesting.

**Comment 5:** You are correct, Wildlife Mitigation Opportunity 15 emphasizes evaluating fences in the Pinedale Field Office Area and the PAPA. New information derived from studies of mule deer and pronghorn migration may point to fences in problem areas that, with some modification, could be less of a migration obstacle than at present. Success of this mitigation opportunity may well hinge on BLM's jurisdiction but also on voluntary participation by the operators and private fence owners.

**Comment 6:** Cumulative impacts are based on existing development as well as reasonably foreseeable development (see page 5-1 and Table 5-1 on page 5-3 of the DEIS). Necessarily, the cumulative impact estimates are focused on oil and gas development (i.e., production-related disturbance) because: 1) it is arguably the largest category of impact currently occurring in the cumulative impact analysis area (CIAA); and 2) it is the type of activity proposed for the PAPA. BLM recognizes that there are probably other land use changes/conversions that are also affecting grazing resources in the CIAA. However, BLM believes these changes are probably not as important to grazing as oil and gas. In addition, there is currently no way to cost-effectively evaluate the cumulative contribution of these other changes/conversions. For purposes of this EIS, BLM believes the impact analysis in Chapter 5 is sufficient.

**Comment 7:** The livestock operator working group could work in conjunction with the AEM planning process. See response to Comment 2, Letter 27 – Upper Green River Cattle Association.

### **Letter 30 - William R. Olsen & Jane R. Olsen**

**Comment 1:** Thank you for your comment. Note, the article mentioned in the comment letter was not reprinted.

### **Letter 31 - Robert P. Barnes**

**Comment 1:** In general, gas deposits have been known to exist upon the Pinedale Anticline since the first, then an uneconomical, well was drilled in 1939. The problem then, as it still is today, is to recover gas volumes in amounts great enough to make each well economical. The highest probability of having a commercial well appears today to be those drilled near the crest of the anticline-about a mile to two wide band. By letting operators drill only 14 exploratory wells spread over the 25 mile length of the anticline until the completion of the EIS has not been enough wells to define the "economical" external limits of the gas reservoir. Only post ROD drilling will define that limit by utilizing the extensive 1999 3-D seismic data to locate wells where maximum reservoir fracturing and sand development has occurred. Drilling to date has been in safe territory along the crest. The few wells drilled off the crest to determine the economic width have had disappointing, mostly with uneconomical results. This includes the unexplored areas outside of the anticline, especially to the south and west. Pad drilling is probably technically feasible, but the results of only three directional wells drilled to date upon the crest have failed to show that they are economically feasible. The nature of the geology is essential in defining the extent of the field in the sense that each additional well drilled on the anticline adds to the sum total of knowledge in defining the ever-changing reservoir sand units and the very important natural fracturing of those sand bodies.

**Comment 2:** Although the BLM would like to produce all the above maps, cross-sections, tabulations, etc., and include them in the EIS, much of this data is confidential and cannot be published in the EIS documents. Basically, it is the responsibility of the operator staffs to produce such data within their offices in order to evaluate their leased lands. After the completion of such evaluations, the operator's will select specific exploration and development drill sites and submit an Application for Permit to Drill (APD) to our Pinedale BLM speciality staff for review and approval. At that time, the geologist completes a geologic review for each APD (averaging about 200 reviews for each of the last three years). The geologist did for a period of about 1 ½ years after the May 7 decision and during the scoping process, periodically visit every producing well within the PAPA to collect current production data to aid in determining anticline well economics. He then presented quarterly that tabulated



confidential production data to management as supporting data to use in the EIS analysis. As to item 5, directional drilling on the Anticline to intersect as many fractures as possible to increase gas recoveries is difficult since the gas reservoir consists of about 100 to 200 individual sand bodies spread out over a 3,000 to 5,000 foot interval. Maybe, in the future after enough detailed knowledge of the Anticline's sand unit lithology, overpressured zones, and fracture patterns has been collected, operators may try this drilling alternative to increase gas recovery and well productivity.

**Comment 3:** The comment is correct on all accounts. The first well was drilled by the California Company and was spudded on 4/29/1939 where it had a total depth of 10,000 feet. The well encountered non commercial gas and was plugged. Its location was used as a stop to discuss early Pinedale Anticline drilling history on the 1998 Public Scoping Field Tour. This information was passed out to the public on the tour and included a copy of the first ever seismic structure map showing the still-valid anticlinal crest which was produced from the company's ancient, late 1930's single-fold seismic data. Your PAPA well count of about 50 wells is current at time of this writing (3/29/2000) but includes about 15 plugged and abandoned wells.

**Comment 4:** Reports of the El Paso/AEC Wagon Wheel Nuclear Stimulation Project have been studied and the geologist has presented the results and had available some of these reports at about half a dozen public scoping and workshop meetings held in Pinedale. The studies by U.S. Geological Survey groundwater department about the project's ultra deep water wells (5,000 feet) are probably the most important outcome having a bearing on the PAPA DEIS. This data has been addressed in the DEIS (see first paragraph, page 3-46).

**Comment 5:** The BLM geologist is very familiar with "seeing" buried gas deposits that are commonly known as seismic "bright spots". However, we already know that nearly all of the Pinedale Anticline's area is covered by gas deposits in varying volumes. Bright spot technology works well in areas where one or two thick gas-bearing rock units are separated by thick shale layers where a good sound wave reflection interface is generated off the top of the sand body. Unfortunately, the anticline contains about 100 to 200 individual sand bodies in the subsurface reservoir formations where each thicker sand layer can generate a reflection wavelet that when summed together causes considerable interference. Originally the operators within the PAPA were not in favor of obtaining the latest generation seismic data, especially 3-D, covering the anticline. However, later they changed their minds and invested substantial money to conduct two large 3-D seismic programs in the summer and early fall of 1999. Additional 3-D programs are proposed over "hot spots." The staff geophysicists of the operators should currently be interpreting last year's 3-D seismic program and use the results to enhance drilling locations for this and future years.

**Comment 6:** BLM could not agree with you more. Ever since Jonah and the Pinedale Anticline drilling activity took off about three years ago, Pinedale's mineral staff's workload has increased substantially—about 3 to 4 fold. BLM's staff increase to cover the workload increase has been little to none. This is mainly due to budget constraints/cutbacks dictated out of Washington; many departments of the government have the same money shortages. BLM welcomes your support. You may wish to contact your Congressional representative to express your concerns. The Pinedale BLM geologist does receive assistance from other BLM geologists in Wyoming and the nation, like the Reservoir Management Group (see Reservoir Management Group Technical Report in DEIS, Appendix D) in Casper, Wyoming, and technical staff at the BLM National Applied Science Center, Federal Center in Denver, Colorado.

**Comment 7:** The BLM geologists involved in the DEIS have used the expertise of the U.S. Geological Survey in their technical publications and maps like Bulletin 1886, "Geology of Tight Gas Reservoirs in the Pinedale Anticline Area, Wyoming and at the Multiwell Experiment Site, Colorado". Pinedale Anticline data and illustrations were taken from this and other USGS publications to support our geologic conclusions. The USGS documents are "essential" data sources in the NEPA process. Some of the 1886 Bulletin key figures and data were presented by the Pinedale geologist to the public attending the many public scoping meetings. This included handouts showing anticline geology, cross sections, in-place gas estimates, reservoir nature, etc.

**Comment 8:** What were the "lessons learned" from its (Jonah Field) Development? - Miller, 1999, prepared a report "Geologic and Reservoir Analyses of Proposal for 40-acre Spacing of Upper Cretaceous Lance Formation



wells in Jonah Field Area, Sublette County, Wyoming" as a review of a report submitted by BP Amoco "BP Amoco Production Company and McMurry Oil Company, 1999, 40-acre development study, Jonah Field, Sublette County, Wyoming: WRMG files" in support of 40 acre spacing in the Jonah Field. A list of references from this report is at end of this response. The following are excerpts from the Miller report.

1. The rocks consist of a series of stacked discontinuous reservoirs that in some areas will be drilled on 40-acre spacing to recover the optimum amount of hydrocarbons and prevent waste.
2. Jonah Field is bounded by strike-slip faults on the southeast and northwest (the two faults converge at the southwest corner of the field) and is bounded on the northeast by the Pinedale Anticline.
3. The Lance Formation thickens to the northeast from 2,900 to 3,500 feet, the gross sandstone content increases to the northeast from 20 to 40 percent, the gross sandstone thickness ranges from 600 to 1,200 feet, and the net sandstone thickness ranges from 300 to 600 feet.
4. Three correlation sections from the BP Amoco report were drawn through four pairs of contiguous, 40-acre spaced wells. These sections show that correlation of individual sandstone and shale beds between wells on wire-line logs is difficult. However, 50- to 200-foot thick sequences of stacked meander-belt and braided stream sandstones, interbedded with and/or separated by thick shale sequences form "sandstone packets" which can be identified on logs and correlated between the wells.
5. A shale cap at top of producing horizons is the seal and separates normal pressure (above) from overpressured (below).

Are the rocks in Jonah different from those in Pinedale Anticline? No. The main potential producing horizon, the Lance Formation, thickens from south to north (may be as much as 6,000 feet thick at north end). At this point, we are not sure if deeper rocks found in both Jonah and Pinedale Anticline will be productive. We also understand from reviewing seismic data that potentially productive rocks in the Pinedale Anticline are in a separate structure than the Jonah Field. The Wind River Thrust Fault has detached Lance Formation and probably older rocks and thrust them to the southwest over the northeast edge of Jonah Field.

Has the regional stratigraphy, facies analysis, and depositional environments been studied and do these studies indicate potential areas for gas development on the flanks of the Pinedale Anticline? The answer to both questions is yes. Yates Petroleum presented geologic and geophysical data in support of drilling offset wells to the BP Amoco Antelope 15-4 well for SDR (State Directors Review, October 14, 1999, Cheyenne, Wyoming). Miller (1999) prepared a report reviewing these data "Geologic and Reservoir Evaluation of Correlative Rights Issues for the Proposed Yates Petroleum Highway Nos. 3 and 4 wells". These reports indicated that the rocks in Jonah and Pinedale Anticline are Lance Formation. The seismic data showed potential for hydrocarbons off of the crest of the Anticline, the actual extent is not known. However proprietary 3-D seismic data and interpretations will probably be able to define the limits within 0.5 mile.

In order to assist your analysis, we have placed a Reference List for the Jonah Field area.

BP Amoco Production Company and McMurry Oil Company, 1999, 40-acre development study, Jonah Field, Sublette County, Wyoming: WRMG files.

Asquith, D.O., 1974, Sedimentary models, cycles, and deltas, Upper Cretaceous, Wyoming: AAPG Bull., v. 58, p. 2274-2283.

Asquith, G.B., 1982, Basic Well-Log Evaluation for Geologists: AAPG Methods in Exploration Series No. 3, 216

Asquith, G.B., undated, Log Evaluation of Shaly Sandstones: A Practical Guide: AAPG Continuing Education Course Note Series No. 31.

Barlow, J.A., Jr. and others, 1993, Wyoming Upper Cretaceous (UC) Plays -Overview: Atlas of Major Rocky Mountain Gas Reservoirs, New Mexico Bureau of Mines and Mineral Resources, p. 39, Socorro, NM.

Barrett Resources Corporation, 1996, Grand Valley field area non-marine Mesaverde Formation depositional



environment montage set: Written Communication, Barrett Resources, Denver, CO.

Blackstone, D.L., Jr., 1993, The Wind River Range, Wyoming: An Overview: WGA 1993 Jubilee Anniversary Field Conference, pp. 121-140, Casper, WY.

Christensen, C.J., 1999, personnel communication.

Crockett, F.J. and others, 1996, Final Geologic, Well Spacing, and Reserve Evaluation Report: U.S. Bureau of Land Management, Wyoming Reservoir Management Group Internal Report, Casper, WY.

Finch, R.W., Skees, W.W., Aud, J.L., Johnson, L., and Hansen, J.T., 1997, Evolution of completion and fracture stimulation practices in the Jonah Field, Sublette County, Wyoming: Rocky Mountain Association of Geologists, 1997 Guidebook, Innovative applications of petroleum technology, p 13-24.

LaVigne, J., Herron, M., and Hertzog, R., 1994, Density-Neutron Interpretation in Shaly Sands: Society of Professional Well Log Analysts, SPWLA 35<sup>th</sup> Annual Logging Symposium, June 19-22, 1994,

Law, B.E., 1984, Relationships of source-rock, thermal maturity, and overpressuring to gas generation and occurrence in low-permeability Upper Cretaceous and lower Tertiary rocks Greater Green River Basin, Wyoming, Colorado, and Utah: Rocky Mountain Association of Geologists, 1984 Guidebook, Hydrocarbon source rocks of the greater Rocky Mountain region, p 469-490.

Law, B.E. and Spencer, C.W., 1989, Geology of tight gas reservoirs in the Pinedale Anticline area, Wyoming, and at the multi-well experiment site, Colorado: U.S. Geol Survey Bull., 1986, 54 p.

Law, B.E., and others, 1989, Estimates of Gas Resources in Cretaceous and Tertiary Sandstone Reservoirs, Greater Green River Basin, Wyoming, Colorado, and Utah: WGA 1989 Field Conference, 1989, pp. 39-61, Casper, WY

McGowan, D.B., and others, 1993, Timing of Hydrocarbon Generation, Organic-Inorganic Diagenesis, and the Formation of Abnormally Pressured Compartments in the Cretaceous of the Greater Green River Basin: A Geochemical Model: WGA 1993 Jubilee Anniversary Field Conference, pp. 65-84, Casper, WY.

Montgomery, S.L. and Robinson, J.W., 1997, Jonah Field, Sublette County, Wyoming: Gas Production from Overpressured Upper Cretaceous Lance sandstones of the Green River Basin: AAPG Bull., v. 81, no. 7, pp. 1049-1062.

Pawlewicz, J.J., Lickus, M.K., Law, B.E., and Dickinson, W.W., 1986, Thermal Maturity map showing depth to 0.8 vitrinite reflectance in the Greater Green River Basin, Wyoming, Colorado, and Utah: U.S. Geol. Survey Miscellaneous Field Studies Map MF-1890.

Robinson, J., Delozier, D, and Finch, R., 1996, Integrated reservoir description and analysis of the Lance Formation, Jonah Field, Sublette County, Wyoming (Abs): AAPG Bull., v. 80, p. 980.

Robinson, J.W. and McCabe, P.J., 1997, Sandstone-body and shale-body dimensions in a Braided fluvial System: Salt Wash Sandstone Member (Morrison Formation), Garfield County, Utah: AAPG Bull., v. 81, No. 8, p. 1267-1291.

Snyder Oil Company, 1997, Application of Snyder Oil Company for an order from the Commission (WOGCC) requesting the shut-in of certain production and authorizing exception locations to the Lance Formation in Township 29 North, Range 108 West, Sections 22, 26, and 27, Jonah Field area, Sublette County, Wyoming: Wyoming Oil and Gas Commission Docket No. 239-97, Casper, WY.

Warner, E.M., 1997, Geology of Jonah Field, a major gas accumulation in the Upper Cretaceous Lance



Formation, Sublette County, Wyoming: Rocky Mountain Association of Geologists, 1997 Guidebook, Innovative applications of petroleum technology, p 1-12.

Wood, Alan, 1999, written communication.

Answers to these comment questions are very likely being generated within the companies who are developing the Jonah area. BLM would not have access to much of the technical information because of its proprietary nature.

**Comment 9:** The geology described in the Pinedale Anticline DEIS is sufficient for purposes of environmental analysis. The description is based upon the best information available. The level of detail indicated by the comment is asking for more than the oil and gas companies have at this point in time. As more wells are drilled following the issuance of the Record of Decision, more information on the geology will become available. Surface impacts are based upon the assumptions laid out in each of the alternatives. No one knows how much of the area will actually be developed. See response to Comment 7, this letter.

### **Letter 32 - Double Eagle Petroleum**

**Comment 1:** Thank you for your comment. The BLM cannot request Congressional relief in the form of royalty reduction. It would be more appropriate that the operators initiate such an action.

### **Letter 33 - Thomas B. Rossetter**

**Comment 1:** Although the DEIS did not offer a mitigation opportunity to move wells 0.5 miles from residences as this comment suggests, the DEIS did suggest a number of mitigation opportunities to reduce the impacts identified in this comment, particularly those related to noise and light pollution and VOC emissions (see Sections 4.10.4 and 4.8.4 of the DEIS).

**Comment 2:** BLM cannot preclude all wells on the "face of the rim" – to do so would prohibit the operator's ability to develop leases outside the VRM II areas. However, as is discussed in Section 4.8.4 and Table 2-8, the RP Alternatives would significantly reduce visual impacts on the "face of the rim" by limiting the number of well pads developed in this area or by requiring the use of centralized production and by avoiding impacts to slopes in excess of 15 percent.

**Comment 3:** BLM has no authority to implement protection on private or state lands. Nor can it use its "good offices", as the comment suggests, to persuade non-Federal agencies to regulate activities on non-Federal lands. All the EIS can do is to point out these "regulatory gaps". Any regulatory solutions would need to be addressed at the local or state level. BLM can recommend to the non-Federal agencies that they adopt comparable measures on private and state lands.

**Comment 4:** See response to Comment 3, this letter and Section 2.3.3 of the DEIS which explains why development limited to 1 or 2 well pads/section is technically not feasible.

### **Letter 34 - Dean Roddick**

**Comment 1:** Thank you for your comment.

### **Letter 35 - Jonathan B. Ratner**

**Comment 1:** Only Congress can take back leases. Action to do this must be initiated by the public. FLPMA provides for the multiple use of all public lands, unless set aside for single use. It has not been demonstrated that development cannot occur in a harmonious way with other uses.



**Comment 2:** As is documented throughout Chapter 4, if development is limited to the anticline crest and proper mitigation is applied, significant impacts may not occur. Since no information is provided in the comment to suggest where any of the impact conclusions reached in Chapter 4 are incorrect, BLM cannot respond to this vague suggestion that the conclusion in the Executive Summary is incorrect.

**Comment 3:** The comment is misquoting the DEIS. The correct statement is "At 4 well pads per square mile, although still evident, the level of development is not expected to overwhelmingly dominate the natural landscape". As stated, and in context with the rest of the paragraph, the statement in the DEIS is correct. This is contrasting 8 and 16 well pads/section.

**Comment 4:** This comment contradicts the information contained in Chapter 3 of the DEIS which shows how oil and gas revenues clearly and significantly support the tax base in Sublette County. Also, see Letter 6 from the Mayor of Pinedale.

**Comment 5:** A quick review of the comments filed by Ultra and McMurry will surely convince the author that companies did not write this DEIS, as this comment suggests.

**Letter 36 - Ron K. McDonald**

**Comment 1:** Thank you for your comment.

**Letter 37 - Ted Lapis**

**Comment 1:** Thank you for your comment.

**Letter 38 - Bernard & Leota Didier**

**Comment 1:** Thank you for your comment.

**Letter 39 - Randy Shipman**

**Comment 1:** Thank you for your comment.

**Letter 40 - Carl Santmyer**

**Comment 1:** Thank you for your comment.

**Letter 41 - George D. Funk**

**Comment 1:** Thank you for your comment. The "boom and bust" experience of Evanston would not occur with the project. See DEIS pages 4-14 and 4-15.

**Letter 42 - Susan Kramer**

**Comment 1:** No one can presently predict how many wells will be necessary to develop the PAPA. The estimate of 500 to 700 wells was a best estimate between the pessimistic and optimistic estimates provided by the individual operators early in the NEPA process. More or less wells could be developed in the PAPA.

**Comment 2:** Interpretation of seismic data does not provide "concrete" answers to how development will progress – although it can be a very useful tool. BLM does not have access to this data and it is their understanding that the operators are currently still evaluating the results of the surveys. Although the comment does not define "phased" development, the RP Alternatives have addressed the pace of development by restricting the number of rigs working in the PAPA at any time to no more than 5. Also, the pace is inherently controlled by market forces (10 to 15 years).



**Comment 3:** Please see Section 2.2.3 of the DEIS which explains why BLM cannot deny development of leases in the PAPA.

**Comment 4:** Mitigation measures may be imposed in the ROD which are generally consistent with the process described in this comment. However, it is inappropriate to make determinations of the appropriateness of mitigation measures in the EIS as it serves only as a disclosure document to generate public comment. No one could have predicted the conflicts documented in this EIS when many of the leases in the PAPA were issued in the 1950s. This was prior to the beginning of general environmental awareness in America and the entire project area was inhabited by a handful of ranchers.

**Comment 5:** The buffer around the Air Force seismic monitoring facility is included in lease stipulations and the Pinedale RMP. No such measures have been suggested in leasing analysis to establish buffers around the Town of Pinedale. The majority of mineral ownership around Pinedale is private - although Federal minerals also exist. Future leasing will give this consideration.

**Comment 6:** This comment may be true but it ignores the sales and use and property taxes paid in Sublette County by the oil and gas industry which comprise the majority of the revenues for the cities, county and school districts.

**Comment 7:** BLM does require the operators to construct and maintain all roads used on Federal lands.

**Comment 8:** BLM does not have authority to regulate emissions – WDEQ/AQD has sole authority pursuant to the Clean Air Act. Air Quality and Noise Mitigation Opportunity 2 on page 4-78 of the DEIS suggests VOC recovery from production equipment in the Residential SRMZ could improve the project. VOCs are regulated by the WDEQ/AQD.

**Comment 9:** The comment states that groundwater withdrawal would result in a lowered water table of 40 to 45 feet in 30 years. This is not the conclusion reached in the DEIS (see page 4-83). The DEIS concludes that between 1 and 1.5 feet of drawdown are expected annually and that the aquifer would be recharged annually. There is no anticipated cumulative drawdown of the aquifer.

**Comment 10:** It is assumed that the comment considers pit liners and drilling muds to be hazardous wastes. Pit liners and drilling muds are not hazardous wastes pursuant to Resource Conservation and Recovery Act. The DEIS recommends that one way to improve the project would be to use closed drilling systems (which eliminates pits and pit liners) in areas where groundwater contamination is a concern and in residential areas where pits could pose other hazards. A decision regarding the use of closed drilling systems on Federal lands will be provided in the ROD. The Wyoming Oil and Gas Conservation Commission has specific rules regarding pits and pit liners which are described in detail in the DEIS in Section 1.7.6.

**Comment 11:** See Appendix E of the DEIS which explains what hazardous materials may be used and how they will be managed.

**Comment 12:** A buffer around the Town of Pinedale would protect only some of the wetland complexes in the PAPA. Extensive and biologically significant wetlands occur adjacent to the New Fork River well south of Pinedale. There is no measure proposed to protect wetlands by a 1 mile buffer. In fact, development outside of wetlands (but directly adjacent to) do not typically require regulatory approvals.

**Comment 13:** Both the SS and RP Alternatives would offer protection of all historical landmarks in the PAPA. Additional mitigation opportunities are offered in Section 4.9.4 of the DEIS.

**Comment 14:** Hunting in and around development has not been a serious problem. Hunters tend to avoid such areas, except for developed fields. If problems do occur, the WGFD and BLM would consider the most appropriate course of action.



**Letter 43 - Ester Johansson Murray**

**Comment 1:** Thank you for your comment.

**Letter 44 - Gertrude M. Smith**

**Comment 1:** Thank you for your comment.

**Letter 45 - Betty A. Young**

**Comment 1:** Thank you for your comment.

**Letter 46 - John Rust**

**Comment 1:** Thank you for your comment.

**Letter 47 - Diane A. Vitt**

**Comment 1:** Thank you for your comment.

**Letter 48 - “A concerned citizen”**

**Comment 1:** The Mineral Leasing Act requires the offering of all Federal minerals for lease unless Congressionally closed or closed by presidential executive order. New wells are essential to replace depleted wells.

**Comment 2:** Limiting development to 1 well pad per section is not technically or economically feasible (see Section 2.3.3 of the DEIS).

**Comment 3:** Centralized production facilities are a development option evaluated under the RP Alternatives. BLM believes centralized production could reduce impacts in the PAPA.

**Comment 4:** Monitoring is included in the framework for the AEM planning process included in Appendix F of the DEIS. Specific wildlife monitoring recommendations are described in Section 4.19.5 on page 4-167 of the DEIS.

**Comment 5:** As is stated throughout the DEIS, BLM cannot limit emissions from compressors in the PAPA. The sole authority to regulate emissions is vested with WDEQ/AQD.

**Letter 49 - Michael J. Kramer**

**Comment 1:** The RP Alternatives consider controlling the pace of development in the PAPA. The number of wells drilled annually would be restricted based on the number of rigs operating. However, BLM does not believe it is possible to set development rates based on monitoring results. As is explained throughout Chapter 4, many of the impacts are dependent on precise well location and well density – these impacts may not be observable until development reaches a certain level. Similarly, many wells scattered over the landscape may result in less visual impact than a single well poorly placed in the Sensitive Viewshed SRMZ. Although much can be learned about impacts through the AEM planning process, lessons learned will often result from close observation of impacts. The AEM planning process, which includes extensive public involvement, will provide the essential monitoring of development impacts.



**Comment 2:** The AEM planning process will consider the need for water quality monitoring in the Wind River Mountains. However, it is important to point out that no impacts are predicted based on modeling conducted for the EIS.

**Comment 3:** OSHA standards address workplace hazard. For incidental environmental risk, U.S. EPA or other environmental agency data are considered more appropriate. In the case of benzene exposure, there is an excellent summary of the possible health effects and relevant exposure levels on the U.S. EPA electronic bulletin board, see [www.epa.gov/ttnuatwl/hlthef/benzene.htm](http://www.epa.gov/ttnuatwl/hlthef/benzene.htm). This summary indicates that acute (short-term) exposure effects are “drowsiness, dizziness, headaches, and unconsciousness in humans. These symptoms stop when the exposure ceases.” “Tests involving acute exposure of animals . . . have demonstrated benzene to have a low acute toxicity from inhalation, moderate acute toxicity from ingestion, and low or moderate toxicity from dermal exposure.” From this it is assumed that acute toxicity will be low because the only exposure to benzene emissions from well operations would be from inhalation. It is the chronic (long-term) exposure effects that are of greater interest and these are addressed in the DEIS.

**Comment 4:** The DEIS did not conclude that allowing wells to be drilled closer than 0.25 miles from occupied dwellings would assure “aesthetically and culturally pleasing surroundings” as this comment suggests. The DEIS recognizes that even at 0.25 miles impacts similar to those described in the comment are going to occur. However, the impacts will likely be much more severe if development occurs on private lands where the 0.25 mile buffer does not apply.

**Comment 5:** Please see Section 2.2.3 of the DEIS which explains why BLM cannot deny development of leases in the PAPA.

**Comment 6:** There is no evidence to support the general conclusion that pit management techniques employed by BLM are ineffective in protecting the environment. However, the DEIS recommends that one way to improve the project would be to use closed drilling systems (which eliminates pits and pit liners) in areas where groundwater contamination is a concern and in residential areas where pits could pose other hazards. A decision regarding the use of closed drilling systems on Federal lands will be provided in the ROD. The Wyoming Oil and Gas Conservation Commission has specific rules regarding pits and pit liners which are described in detail in the DEIS in Section 1.7.6.

**Comment 7:** Groundwater monitoring programs will be addressed by the AEM planning process.

**Comment 8:** Please refer to page 4-75 of the DEIS which discusses both visibility impacts and acid deposition impacts for the project. Air quality modeling was conducted in accordance with an Air Quality Modeling Protocol developed in cooperation with the EPA, the State of Wyoming, the Forest Service and the National Park Service. The modeling showed that there are no predicted significant impacts to either visibility in the Class I areas or to high mountain lakes due to acid deposition. A detailed analysis is presented in the Air Quality Technical Report. The Forest Service concurred with the findings of the modeling (see Letter 2 – Forest Service).

**Comment 9:** The AEM planning process is designed to address these concerns.

**Comment 10:** It is uncertain from the comment as to how a buffer in excess of 500 feet around wetlands would contribute to protection of wetlands.

**Comment 11:** As development occurs, concerns associated with hunting and public safety can be addressed under the AEM planning process.

## **Letter 50 - Dan Stroud**

**Comment 1:** The RP Alternative analyzed a limit on the number of rigs in the PAPA at 5. It would result in less impact but would extend these impacts over a longer period of time.



**Comment 2:** See response to comments 4 and 5, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 3:** See response to comment 5 and 6, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 4:** See response to Comment 7, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 5:** There are no critical habitats designated by USFWS under ESA that would be affected by the project. The Wyoming Game and Fish Commission Mitigation Policy (1998) defines crucial habitats as a "vital" wildlife resource (see Table 4-44, page 4-120 DEIS) but has not defined sage grouse winter habitat as a crucial habitat. Recently revised Guidelines for management of sage grouse populations and habitats (J.W. Connelly et al. 2000. Idaho Department of Fish and Game, Pocatello) do stress the importance of winter sage grouse habitats and information is becoming available to define sage grouse wintering areas on the PAPA (Lyon, A.G. 2000. The potential effects of natural gas development on sage grouse populations near Pinedale, Wyoming. MS Thesis, University of Wyoming, Laramie). For the most part, sage grouse wintering on the PAPA occur in relatively dense sage brush that is also utilized as nesting habitat and there are numerous measures in each alternative of the DEIS that provide protection to nesting habitats and, coincidentally, wintering habitats.

**Comment 6:** The DEIS suggests, in Section 4.19.4, that offsite mitigation (through habitat acquisition and/or improvement) may be one way to offset impacts that occur to important wildlife habitats in the PAPA.

**Comment 7:** This will be addressed as a part of the AEM planning process (see Appendix F of the DEIS).

**Comment 8:** See response to Comment 13, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 9:** As this suggestion states, a watershed/landscape approach may be relevant in the AEM planning process. The intent of the planning process is to look at certain impacts at this level.

## **Letter 51 - Joe Winkler**

**Comment 1:** Thank you for your comment.

## **Letter 52 - D. Schweig**

**Comment 1:** The DEIS suggests, in Section 4.19.4, that offsite mitigation (through habitat acquisition and/or improvement) may be one way to offset impacts that occur to important wildlife habitats in the PAPA.

**Comment 2:** See response to Comment 6, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 3:** BLM does not have the authority to regulate emissions. This is the sole responsibility of the Wyoming Department of Environmental Quality, Air Quality Division.

**Comment 4:** See response to Comment 5, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

## **Letter 53 - LeRoy Lewis**

**Comment 1:** The RP Alternative analyzed a limit on the number of rigs in the PAPA at 5. It would result in less impacts but would extend these impacts over a longer period of time.



## **Letter 54 - Daniel J. Mika**

**Comment 1:** The DEIS evaluates the impacts of 500 to 700 new wells in the PAPA over the next 10 to 15 years. The BLM is uncertain of the source of the estimate of 5,000 to 10,000 wells contained in this comment. Within all of southwestern Wyoming, there is the potential for around 9,700 wells over the next 15 to 20 years (see DEIS Chapter 5).

**Comment 2:** Both pad drilling and centralized production facilities are addressed as important components of the RP Alternatives throughout the DEIS.

**Comment 3:** The BLM cannot require that the operators use electric compression. Enforcement of state and Federal air quality standards is the sole responsibility of the Wyoming Department of Environmental Quality, Air Quality Division. Modeling predictions show that there are no significant impacts to Class I areas as a result of the Pinedale Anticline Project.

**Comment 4:** See response to Comment 13, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 5:** The proposed cumulative impact study contemplated by this comment is contained in Chapter 5 of the DEIS.

**Comment 6:** BLM is unaware of the "contradictory" impact analysis suggested in this comment. There is no indication in the comment as to where the contradiction occurs in the DEIS.

**Comment 7:** See response to Comment 5, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 8:** See response to Comment 12, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

## **Letter 55 - Frederick J. Araas**

**Comment 1:** Thank you for your comment.

## **Letter 56 - John S. Crosby**

**Comment 1:** Thank you for your comment.

## **Letter 57 - Vernon L. Minenna**

**Comment 1:** No one can predict, based on what is currently known about the ability of the PAPA to economically produce gas, how many wells will ultimately be required to develop the area. The ultimate number of wells drilled in the PAPA will be determined by the aerial extent of the gas resources, their ability to produce, and the economics of producing the gas.

**Comment 2:** Monitoring is proposed for wildlife resources. Please see Appendix F of the DEIS which provides a framework for an AEM planning process designed to, among other things, monitor impacts to wildlife.

**Comment 3:** See response to Comment 1, this letter and Section 2.3.3 of the DEIS which explains why developing the area using 1 or 2 well pads/section is neither technically or economically feasible.



**Letter 58 - Gerhard Weinberg**

**Comment 1:** Thank you for your comment.

**Letter 59 - Greg Eiden, Sr.**

**Comment 1:** Thank you for your comment.

**Letter 60 - Larry Dibrito**

**Comment 1:** Thank you for your comment.

**Letter 61 - Robert E. Damson**

**Comment 1:** Please see Section 2.3.3 of the DEIS which explains why development using 1 or 2 well pads/section is not technically or economically feasible.

**Comment 2:** These recommendations are standard BLM reclamation practices and are described in detail in Appendix A of the DEIS.

**Comment 3:** As the comment recommends, bonds are required for all operations on Federal lands.

**Comment 4:** Seed mixes for revegetation are limited to native species. Topsoil respreading over disturbed areas contains natural sources of sagebrush seed. This has proven very successful in reestablishing sagebrush.

**Comment 5:** BLM already controls access to the Mesa during critical periods to protect wildlife.

**Comment 6:** BLM can only recommend environmental practices on non-Federal lands. These are essentially issues that need to be addressed at state, county and local levels.

**Letter 62 - John G. Raffensperger, M.D.**

**Comment 1:** Thank you for your Comment

**Letter 63 - Keith R. Neville**

**Comment 1:** Thank you for your comment.

**Letter 64 - Tim Sullivan**

**Comment 1:** The RP Alternatives analyzed a 5 rig limit in the PAPA. If implemented, the number of wells drilled annually would be restricted. However, BLM does not believe it is possible to set development rates based on monitoring results. As is explained throughout Chapter 4, many of the impacts are dependent on precise well location and well density – these impacts may not be observable until development reaches a certain level. Similarly, many wells scattered over the landscape may result in less visual impact than a single well poorly placed in the Sensitive Viewshed SRMZ. Although much can be learned about impacts through the AEM planning process, lessons learned will often result from close observation of impacts.

**Letter 65 - Gary G. Ruhser**

**Comment 1:** Thank you for your comment.



## **Letter 66 - Thorny Acr**

**Comment 1:** Thank you for your comment.

## **Letter 67 - Sheryl Lehman**

**Comment 1:** See response to comments 4, 5, 6, 7 and 13, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

## **Letter 68 - Peter Lindabery**

**Comment 1:** Bonds are required for all activities on Federal lands.

## **Letter 69 - Todd Perry**

**Comment 1:** Please see Section 2.3.3 which explains why developing the area at 1 or 2 well pads/section is not economically or technically feasible.

**Comment 2:** As is stated throughout the DEIS, BLM cannot impose mitigation measures on non-Federal lands.

**Comment 3:** It is not certain from the comment the reason for desiring that wells be placed further away from homes (i.e., air quality, noise, light pollution, decreased property value, etc.). However, Chapter 4 of the DEIS contains a number of mitigation opportunities that could be imposed on private as well as Federal lands which could reduce impacts to nearby residences. Most of the impacts to residences are likely to occur on non-Federal lands where BLM has no regulatory authority. Further restrictions on these lands can be imposed only by state and local regulations.

## **Letter 70 - Richard Kroger**

**Comment 1:** Thank you for your comment.

## **Letter 71 - William Guheen**

**Comment 1:** Thank you for your comment.

## **Letter 72 - Willis J. Jenson**

**Comment 1:** Thank you for your comment.

## **Letter 73 – Adrian Shell**

**Comment 1:** See Section 2.3.3 of the DEIS which describes why 1 or 2 well pads/section is not technically or economically feasible.

## **Letter 74 - John Tautin**

**Comment 1:** See Section 2.2.3 which explains why the No Action Alternative cannot be adopted.

**Comment 2:** These recommendations are part of the RP Alternatives addressed in the DEIS.



## **Letter 75 - "An old and tired oilfield hand"**

**Comment 1:** Thank you for your comment.

## **Letter 76 – Mary Beth Chavis**

**Comment 1:** Thank you for your comment.

## **Letter 77 - Jon Malinski**

**Comment 1:** No one can predict, based on what is currently known about the ability of the PAPA to economically produce gas, how many wells will ultimately be required to develop the area. The ultimate number of wells drilled in the PAPA will be determined by the aerial extent of the gas resources, their ability to produce, and the economics of producing the gas.

**Comment 2:** The RP Alternatives analyzes a 5 rig limit in the PAPA. If implemented, the number of wells drilled annually would be restricted.

**Comment 3:** See response to Comment 7, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 4:** See response to comments 5 and 6, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 5:** Enforcement of state and Federal air quality standards is the sole responsibility of the Wyoming Department of Environmental Quality, Air Quality Division.

**Comment 6:** See response to Comment 12, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 7:** This is a BLM Standard Stipulation.

**Comment 8:** The RP Alternative analyzed a limit on the number of rigs in the PAPA. If implemented, it would result in less impacts and would extend impacts over a longer period of time.

**Comment 9:** See response to Comment 4, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 10:** See response to Comment 13, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

## **Letter 78 - Texaco Exploration & Production, Inc.**

**Comment 1:** All of these issues have been addressed in comments submitted by the PAPA operators.

**Comment 2:** Thank you for your comment on centralized production.

## **Letter 79 - Ed Lavino**

**Comment 1:** Thank you for your comment.



## **Letter 80 - Daniel N. Lindsey**

**Comment 1:** Thank you for your comment.

## **Letter 81 - Robert R. Barrett**

**Comment 1:** The comment correctly summarizes our current knowledge about potential oil and gas impacts on big game. However, the comment fails to recognize that many of the leases in the PAPA are over 50 years old and they contain little, if any, environmental restrictions. It is unfair to assume that when these leases were issued the operators would have been “aware” that conflicts with wildlife resources would occur to any significant.

## **Letter 82 - Pat Rollison**

**Comment 1:** Thank you for your comment.

## **Letter 83 - Byril J. Sanders**

**Comment 1:** The mitigating measures identified in this comment are standard practices on Federal lands (see Appendix A of the DEIS).

## **Letter 84 - Charles C. Rumsey Jr.**

**Comment 1:** Thank you for your comment.

## **Letter 85 - Kenneth Becker**

**Comment 1:** Thank you for your comment.

## **Letter 86 - Bill Martin**

**Comment 1:** Extensive scoping meetings/workshops and comment opportunity was provided. The public review opportunity for the DEIS was extended 10 days – allowing a full 70 day review period on the draft document.

**Comment 2:** See response to comments 4, 5, and 7, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Comment 3:** Removal of all equipment from the lease upon abandonment on Federal lands is a standard requirement.

## **Letter 87 - Tim and Doris DuPont**

**Comment 1:** These measures are incorporated into the RP Alternatives.

## **Letter 88 - Buzz Burzlander**

**Comment 1:** Thank you for your comment.

## **Letter 89 - John Mionczynski**

**Comment 1:** Modeling of effects on air quality related values and acid deposition have been conducted for this project. No significant impacts are anticipated. The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5).



**Comment 2:** See response to comments 6, 7, 9, 10 and 12, Letter 23 (Greater Yellowstone Coalition and Jackson Hole Conservation Alliance).

**Letter 90 - Richard Robichaux**

**Comment 1:** Thank you for your comment.

**Letter 91 - John Fandek**

**Comment 1:** Thank you for your comment.

**Letter 92 - William R. Rozier**

**Comment 1:** BLM concurs. During the drilling process, smoke and flares will be visible. However, BLM believes the extensive modeling conducted for this project accurately predicts that no significant impacts to air quality related values will occur. The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5).

**Comment 2:** Mitigation opportunities which could be used to reduce noise impacts in residential areas are discussed in Sections 4.6.4 and 4.10.4 of the DEIS.

**Comment 3:** This mitigation opportunity is described in Section 4.8.4 of the DEIS.

**Comment 4:** In Section 4.13.2.4 the DEIS recommends a groundwater monitoring program as suggested by this comment.

**Comment 5:** This consideration has been addressed in Section 5.2 of the DEIS.

**Comment 6:** These monitoring recommendations will be considered during the AEM planning process (see Appendix F of the DEIS).

**Letter 93 - Cat Urbigkit**

**Comment 1:** Thank you for identifying the typos. However, because they do not alter the conclusions reached in the DEIS, those changes have not been made in the FEIS.

**Letter 94 - Jonathan B. Ratner**

**Comment 1:** The modeling technique was directed and implemented under the supervision of an interdisciplinary team consisting of the EPA, State of Wyoming, Forest Service, National Park Service and the BLM. Although industry provided input to the model assumptions, the modeling method was not favored by the industry as this comment suggests (see Letters 13 and 14 from McMurtry Oil Company and BP Amoco). The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5). The comment provides no evidence to support the conclusion that "there will be an acceleration of the acidification and other deposition that is already occurring in these sensitive areas." BLM disagrees with this conclusion.

**Comment 2:** As was stated in response to Comment 1, the Forest Service agrees with the results of the air quality modeling completed for this project.

**Comment 3:** BLM disagrees that an incorrect conclusion was reached in the DEIS that threatened and endangered species would not be adversely affected. This conclusion is supported by significant analysis in Section 4.18 of the DEIS. No evidence is provided by this comment to suggest how an adverse affect would



occur.

**Comment 4:** See response to Letter 92, Comment 5 – William R. Rozier.

**Comment 5:** Both these measures are incorporated in the RP Alternatives.

**Comment 6:** No information is provided that explains why the current buffers are inadequate. Certainly the author must agree that a 0.25 mile buffer is much more desirable than 350 feet! The 0.25 mile buffer is a standard BLM lease stipulation. However, if site-specific analysis demonstrates that activities should be further restricted to avoid significant impacts, the buffer could be extended.

**Comment 7:** This recommendation will be addressed in the AEM planning process.

**Comment 8:** This comment is incorrect. This section in the DEIS is discussing PSD not air quality related values.

#### **Letter 95 - McKay L. Erickson and Robyn K. Erickson**

**Comment 1:** Thank you for your comment.

#### **Letter 96 - Tory Taylor**

**Comment 1:** No one can predict, based on what is currently known about the ability of the PAPA to economically produce gas, how many wells will ultimately be required to develop the area. The ultimate number of wells drilled in the PAPA will be determined by the aerial extent of the gas resources, their ability to produce, and the economics of producing the gas. Assuming discoveries with economic potential, development will occur over a 10 to 15 year period.

**Comment 2:** This wildlife mitigation opportunity is discussed in Section 4.19.4 of the DEIS. Reclamation mitigation opportunities are discussed in Section 4.14.4 of the DEIS and Appendix A, page A-14 and A-26.

**Comment 3:** A transportation plan for the entire Green River Basin is outside the scope of this process. However, a Transportation Planning Committee has been formed which will address transportation issues related to this project.

**Comment 4:** BLM currently works with WGFD to assure that adequate timing stipulations and avoidance buffers are included into leases as well as APDs. Studies/evaluations to assess effects of exploration and development are proposed.

#### **Letter 97 - David Vlcek**

**Comment 1:** Currently there are no Federal, state, or local laws or regulations that would require operators to pay a percentage of their production to local governments other than through existing taxes on property and sales and use. Taxes which will be paid by the operators to Sublette County are expected to be significant and could be used to fund many of the opportunities discussed in this comment.

**Comment 2:** The mitigation opportunity is quoted out of context. It is very reasonable to conclude that noise impacts from drilling adjacent to occupied dwellings would be less during periods of the year when windows are typically closed. BLM does not consider this "ridiculous". The Steel well is a good example of how winter drilling, when coupled with other mitigation measures (i.e., control of noise and light), can reduce impacts.

**Comment 3:** Flaring is done to control hazardous air pollutants. The WDEQ/AQD is solely responsible for determining flaring requirements from oil and gas operations.



**Comment 4:** Such a fund would have to be voluntarily implemented by the operators. BLM cannot require the operators to contribute to such a fund.

**Comment 5:** Raptor buffers vary by species. Establishing a 0.5 mile buffer for all raptors would actually reduce protection for some species. BLM requires a seasonal buffer of 0.5 miles for all raptors except ferruginous hawks and bald eagles which is 1 mile. The no surface occupancy buffer of 825 and 2,000 feet (raptors and ferruginous hawk and bald eagle, respectively) are based on existing studies.

**Comment 6:** See response to Comment 1, this letter.

**Comment 7:** BLM cannot become involved in issues on non-Federal lands. These issues must be addressed by state and local governments. However, BLM concurs that its mission is to serve the public and the agency can share information it has with the public.

### **Letter 98 - Larry and LaVeta Pennock**

**Comment 1:** Thank you for your comment.

### **Letter 99 - D. C. Production Services**

**Comment 1:** Thank you for your comment.

### **Letter 100 - Linda Baker**

**Comment 1:** See response to Letter 26, Comment 1 (Wyoming Chapter of the Sierra Club) which explains why BLM does not consider the DEIS as an amendment to the Pinedale RMP.

**Comment 2:** This comment is correct. Please see the Errata for page 2-5. This comment is also correct in its assessment of reasonableness. The purpose of the DEIS is to consider/evaluate what may or may not be reasonable for the benefit of the public and decision makers. See response to Comment 2, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 3:** For the reasons included in Section 2.3.3 of the DEIS, BLM disagrees with the conclusion reached in this comment. BLM cannot require development to proceed across the PAPA at 1 well pad/section.

**Comment 4:** See response to Letter 26, Comment 26 (Wyoming Chapter of the Sierra Club) which explains taking of the public wildlife.

**Comment 5:** The comment fails to recognize that many of the leases in the PAPA are over 50 years old and they contain little, if any, environmental restrictions. It is unfair to assume that when these leases were issued the operators would have been “aware” that conflicts with wildlife resources would occur to any significant degree.

**Comment 6:** See response to Comment 3, this letter.

**Comment 7:** There will be no net loss of wetland or wetland functions on Federal lands.

**Comment 8:** The RP Alternatives would limit the number of drill rigs operating in the PAPA at any one time to no more than 5. BLM does not believe it is appropriate to restrict the number of wells drilled annually. BLM cannot impose limits on non-Federal lands. An artificial limit on the number of wells allowed in the PAPA annually may result in disproportionate impacts on resources on non-Federal lands.

**Comment 9:** See response to Comment 1, Letter 97 – Dave Vlcek.



**Comment 10:** It is not certain from the comment the reason for desiring wells be placed further away from homes (i.e., air quality, noise, light pollution, decreased property value, etc.). However, Chapter 4 of the DEIS contains a number of mitigation opportunities that could be imposed on private as well as Federal lands which could reduce impacts to nearby residences. Most of the impacts to residences are likely to occur on non-Federal lands where BLM has no regulatory authority. Further restrictions on these lands can be imposed only by state and local regulations.

**Comment 11:** Mitigation measures which could reduce impacts to recreation resources are described in Section 4.7.4 of the DEIS. See Recreation Mitigation Opportunity 4 which describes one means of creating a biking, jogging and walking trail which would avoid heavy traffic.

**Comment 12:** This comment would impose a higher standard of protection on the Wind River SRMA than currently imposed on the SRMA in the Green River RMP.

**Comment 13:** Basically, the mitigation measures recommended in the VRM II areas in this comment are the same as those identified for all the alternatives in Table 2-8 of the DEIS.

**Comment 14:** The RP Alternatives contain an objective (see Table 2-8) which would evaluate the possibility of further reducing well pad density in the Sensitive Viewshed SRMZ.

**Comment 15:** This recommendation is included in the RP Alternatives (see Section 4.13.3.3).

**Comment 16:** See response to Letter 4, Comment 5 – USFWS.

**Comment 17:** See response to Letter 42, Comment 2 – Susan Kramer.

**Comment 18:** Potential mountain plover nesting habitat on the PAPA was delineated (white-tailed prairie dog colonies, desert shrub and mixed grassland vegetation) and effects due to each alternative were analyzed in Section 4.18.3 of the DEIS. Specific recommendations made by USFWS to protect mountain plovers have been described in Appendix A. The AEM planning process is the appropriate vehicle through which consideration and design of a species-specific management plan can be enacted as new information becomes available over the life of the project.

**Comment 19:** Though surveys for pygmy rabbits have not been conducted on the PAPA, potentially suitable habitats occur in dense, tall sagebrush along intermittent streams (see Table 3-22, page 3-67 of the DEIS). BLM standard stipulations prohibiting surface occupancy within Zone A (100-year) flood hazard areas, within 500 feet of perennial streams, wetlands and riparian areas and within 100 feet of ephemeral, intermittent streams (including those not exhibiting riparian characteristics) will protect potential or inhabited pygmy rabbit habitat on Federal lands and minerals (see Table 2-8 DEIS). If additional protection to the species becomes necessary, the AEM planning process is the appropriate vehicle to change management strategies as new information becomes available over the life of the project.

**Comment 20:** The need for additional monitoring of acid deposition in the Wind Rivers will be determined through the AEM planning process. However, the BLM and the cooperating agencies disagree that the use of CALPUFF did not accurately predict impacts from emissions. The modeling technique was directed and implemented under the supervision of an interdisciplinary team consisting of the EPA, State of Wyoming, Forest Service, National Park Service and the BLM. The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5).

**Comment 21:** The extensive analysis of impacts to sage grouse in the DEIS and provisions incorporated in the Resource Protection Alternative reflects concerns for the species described in the newly revised guidelines which were published after the DEIS was written. Nevertheless, components of the sage grouse nesting habitat model used to evaluate where suitable nesting habitat occurs on the PAPA utilizes many of the habitat components, either implicitly or explicitly, that have been recommended in the new guidelines. Presently, a multi-agency



working group consisting of WGFD, BLM, Forest Service, USFWS and Wyoming Department of Agriculture biologists are reviewing the referenced Guidelines for management of sage grouse populations and habitats (J.W. Connelly et al. 2000. Idaho Department of Fish and Game, Pocatello) to determine appropriate application within Wyoming.

### **Letter 101 - Mocroft Family Partnership**

**Comment 1:** The comments read into the record at the public hearing are not reprinted here. They are provided in their entirety in the hearing transcript. (see FEIS Section 7).

**Comment 2:** This recommendation would be best considered through the AEM planning process. BLM will make sure that you receive an invitation to participate in that process.

**Comment 3:** Recommendations for groundwater monitoring are provided in Section 4.13.2.4 of the DEIS.

### **Letter 102 - John F. Spahr**

**Comment 1:** The BLM and the cooperating agencies disagree that the use of CALPUFF did not accurately predict impacts from emissions. The modeling technique was directed and implemented under the supervision of an interdisciplinary team consisting of the EPA, State of Wyoming, Forest Service, National Park Service and the BLM. The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5).

**Comment 2:** See response to comments 5 through 23, Letter 26 (Wyoming Chapter of the Sierra Club).

### **Letter 103 - Clem L. Rawlins**

**Comment 1:** The comment does not provide information to support the claim that leases were issued in "direct violation of FLPMA, and the Class I provisions of the Clean Air Act." Without specific additional information, BLM cannot respond to this comment.

**Comment 2:** The BLM and the cooperating agencies disagree that the use of CALPUFF did not accurately predict impacts from emissions. The modeling technique was directed and implemented under the supervision of an interdisciplinary team consisting of the EPA, State of Wyoming, Forest Service, National Park Service and the BLM. The EPA, State of Wyoming, Forest Service and National Park Service concur with the conclusions reached in the DEIS (see Letters 1, 2, 3, and 5).

**Comment 3:** See response to Comment 4, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 4:** See response to Comment 5, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 5:** See response to Comment 6, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 6:** See response to Comment 7, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 7:** See response to Comment 8, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.



**Comment 8:** See response to Comment 9, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 9:** See response to Comment 10, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 10:** See response to Comment 11, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 11:** See response to Comment 12, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 12:** See response to Comment 13, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 13:** See response to Comment 14, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Comment 14:** See response to Comment 15, Letter 23 – Greater Yellowstone Coalition and Jackson Hole Conservation Alliance.

**Letter 104 - Mark Beck**

**Comment 1:** Thank you for your comment.

**Letter 105 – Jonathan D. Dewez**

**Comment 1:** Thank you for your comment.

**Letter 106 - Nancy Reno**

**Comment 1:** Thank you for your comment.

**Letter 107 - U.S. Army Corps of Engineers**

**Comment 1:** Thank you for your comment.